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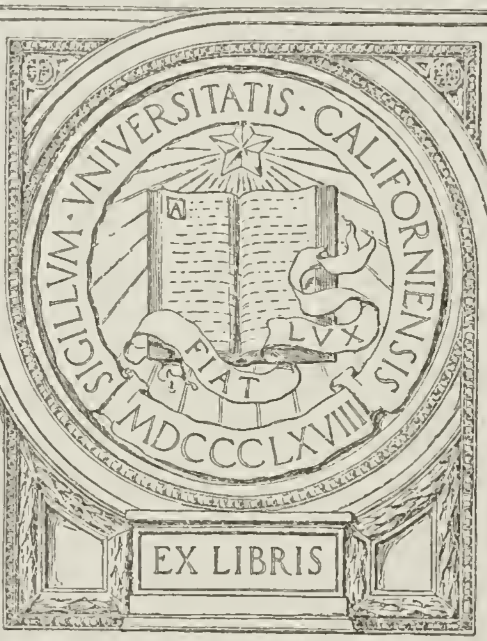

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W. H. Anderson, M.D., Editor-in-Chief
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INDEX

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AUTHOR INDEX

Adams, William Milton 241
Alexander, Byron (port.) 323
Allen, James H. 78
Alsop, Webb S. Jr. 1
Armstrong, George Glaucus (biog.) 27
Arrington, O. N. (death of) 356
Avent, J. K. 280
Bailey, S. Lamar (port.) 317, 323
Barzilai, Raymond 187
Barnes, Thomas G. 19
Barr, John S. 344
Bass, R. F. 176
Becker, Walter F. 101
Bell, John C. (death of) 182
Berry, W. S. (death of) 212
Bethea, W. R. (death of) 124
Biles, Robert (death of) 125
Blake, Thomas H. 45, 283
Blakey, Durward 14
Blalock, John 127
Boies, Lawrence R. (port.) 325
Boykin, R. B. (death of) 212
Bramlitt, E. E. 331
Brandon, W. H. 58
Brewer, Malcolm I. (death of) 304
Brock, D. T. Jr. 254
Brooke, Marion M. (port.) 323
Brown, A. E. 199
Bryan, Giles Sanford (death of) 208, 211
Bryan, Guy Sanford (death of) 125
Bunch, William L. Jr. 204
Burks, James W. 174
Burnstein, Norman 256
Busby, E. E. (death of) 330
Bynum, Joseph M. (death of) 356
Caine, Curtis W. 47, 74
Caldwell, R. B. (port.) 265
Canizaro, V. J. (death of) 125
Caraway, Agnes Burt (port.) 323
Carey, V. F. 231
Carl, L. T. (port.) 324
Carr, Duane 71, 262
Cole, Francis H. 35
Cox, Allen E. (death of) 125
Crawford, W. W. (death of) 208, 211
Crenshaw, James F. 7
Crider, J. O. (port.) 352
Dodd, Katherine (port.) 323
Dodd, Robert (death of) 28
Donoghue, Don H. 305
Dotson, Lon W. (death of) 356
Douglas, Gilbert F. 113
Dunagin, James L. 230
Dye, T. M. (tribute) 352
Ellis, J. W. (death of) 28
Ewing, M. Q. 54
Farmer, E. E. (death of) 268
Fatherree, J. P. 245
Fellman, Mrs. Evan 349
Fenstermacher, R. H. 166
Fowler, Foster 339
Freeland, C. F. (death of) 357
French, W. Edward 296
Gamble, Hugh (death of) 87, 92, 120
Garrison, Harvey F. 62, 91, 124, 181, 210, 236, 267, 303, 354
Gellis, Sydney S. 65
Golden, Lovette (death of) 125
Goodwin, F. G. (death of) 181
Googe, George William (biog.) 266
Gray, Walter Petway 27
Gregory, A. L. (death of) 28
Guyton, Arthur C. 244
Halfacre, R. R. (death of) 212
Hall, Toxey E. 201
Hamilton, Hugh G. 1
Hardy, James D. 35, 155, 331
Hedgepeth, T. Harvey 215
Hewes, Archibald C. (port.) 324
Hewitt, B. J. (death of) 182
Higdon, B. H. (death of) 268
Hightower, G. D. (death of) 92
Hightower, L. H. (death of) 330
Higgins, Robert S. 1
Hill, A. S. (death of) 304
Holman, Charlie Hinds (biog.) 151
Hudson, L. B. (death of) 28
Hughes, John A. (death of) 63
Jabbour, Eugene 143

Hightower, G. D. (death of) 92
Hightower, L. H. (death of) 330
Higgins, Robert S. 1
Hill, A. S. (death of) 304
Holman, Charlie Hinds (biog.) 151
Hudson, L. B. (death of) 28
Hughes, John A. (death of) 63
Jabbour, Eugene 143

Johnson, Samuel B. 250
Jones, Mrs. Walk C. 349
Justice, Thurman T., Jr. 149
Kilpatrick, T. F. (death of) 304
King, Jack V. 254
Kisner, W. Howard 82
Knox, John M. 174
Kredel, Frederick E. 275
Labecki, Thaddeus D. 219
Land, George William (biog.) 63
Lane, S. L. (death of) 182
LeTard, Francis X. 320
Lewis, Miles L. 134
Lockard, Blanche 170
Long, Lawrence W. 45
Mathis, E. J. (death of) 239
McBurney, Robert P. 262, 271
McCall, Cummings H. (port.) 60, 323, 342
McCauley, J. J. (death of) 212
McDaniel, J. C. (death of) 330
McDougal, L. L. 288
McMahon, Alphonse (port.) 153
McRae, B. J. (death of) 30
McRae, Kenneth Francis (biog.) 266
Melvin, John L. (death of) 239
Melvin, J. P. Jr. 74
Merrill, A. J. 334
Middleton, Thos. F. 324
Mounger, S. G. 178
Neill, Charles L. 226
Netterville, Rush E. 74
Newell, R. R. 93, 162
Nobles, Eugene R. (death of) 352, 356
Ochsner, Alton 127
O'Ferrall, R. Carter 118
O'Ferrall, Mrs. R. Carter (port.) 325
O'Mara, B. B. 323
O'Neal, K. Ramsay 137
Parsons, W. H. (port.) 88
Payne, R. F. (death of) 357
Pegues, J. C. (port.) 325
Posey, E. Leonard, Jr. 43
P'Pool, Matthew (death of) 63
Pratt, Joseph Hyde 183
Prine, J. S. (death of) 182
Pritchard, C. D. (death of) 330
Rafferty, D. G. (death of) 92
Ragan, A. M. (death of) 182
Ramay, Allen Emery (death of) 28
Ray, Bronson S. 107
Reagan, Ralph (death of) 330
Reid, Lee R. 195
Ringold, Oscar E. 292
Rives, J. D. 101
Robinson, T. A. 315
Rush, Gus A., Jr. 119
Safley, Thomas J. 50

Salmond, P. H. (death of) 356
Sanger, W. T. 300
Scott, Henry William (port.) 324
Senter, C. R. (death of) 211
Shannon, Hervey Linwood (biog.) 266
Simmons, W. 141
Smith, Clyde 305 (311)**
Smith, Margaret H. D. 277
Snelling, Mrs. M. M. (port.) 64, 325
Stallworth, W. L. (port.) 173-324
Stephenson, S. L., Jr. 43
Stingily, Karl O. 222
Sugarbaker, Everett D. 159
Summers, F. L. (death of) 357
Sutherland, Wade Hampton (biog.) 238
Swan, Henry 31
Sweany, J. D. (death of) 125
Tabb, Harold G. (port.) 325
Taylor, Chas. D., Jr. (port.) 323
Terry, Hal Mabry (biog.) 151
Towns, Sherrod Ross (biog.) 63
Trumbull, Merlin 271
Tuminello, Dominic 223
Turner, Mrs. George 346
Twente, George E. 52
Underwood, Felix J. 154, 191
Verser, Joe (port.) 302
Webb, Watts R. 16, 312
Weech, A. Ashley (port.) 323
Weed, John C. 320
Weeks, J. T. 56
Wesson, Thomas W. 253
Whitfield, R. N. (port.) 353
Wiener, Julian 290
Williams, J. D. 260
Williams, J. Rice (death of) 28
Williams, Laura O. 248
Williams, Louise 23
Wilson, Harwell 155, 331
Windham, James Herbert (biog.) 238
Witte, K. L. (death of) 182
Wood, Mrs. W. M. 358
Wright, Henry L., Jr. 320

**Error in pagination.

§

SUBJECT INDEX

Abdomen
—acute injuries (Frederick E. Kredel) 275
Acne
—vulgaris (John M. Knox and James W. Burks) 174
Alcoholism
—ill effects on body and mind (Gilbert F. Douglas) 113
Ankle
—joint injuries (D. H. Donoghue) 305
Aneurysm, Aortic
—(Harwell Wilson and James D. Hardy) 155
—(R. P. McBurney) 262
Aorta
—successful resection for occlusive disease with restoration by aortic homograft (H. Wilson, J. D. Hardy, E. E. Bramlitt) 331
Arteries
—acute arterial occlusion (John S. Barr) 344
Arteriosclerosis
—atheromatosis: definition of problem (T. D. Labecki) 219
Bladder
—obstruction, neck of in children (Julian Wiener) 290
Blood Proteins
—gamma globulin, recent use in Bolivar County (Dominic Tuminello) 223
—gamma globulin in prevention of disease (Sydney S. Gellis) 65
Brain, Abscess
—associated with congenital heart disease (Charles L. Neill) 226
Breast
—lesions, review (R. H. Fenstermacher) 166
Burns
—thermal and radiation, emergency treatment (Thomas J. Safley) 50
Cancer
—and cigarettes (D. Carr) 262
—biopsy in diagnosis (Everett D. Sugarbaker) 159
—lower lip (Clyde Smith) 305
—problem, current control efforts, future needs in Miss. (A. E. Brown) 199
—radio-isotope therapy (R. R. Newell) 162
—stomach (Alton Ochsner and John Blalock) 127
—the cancer society and MSMA (C. H. McCall) 342
Cesarean Section
—indications for (J. P. Fatherree) 245
Chest
—crushing injuries (D. Carr) 71
—radiology (R. R. Newell) 93
Cripples
—hospital for crippled adults (Mrs. E. Fellman and Mrs. W. C. Jones) 349
Deafness
—common types, management (Miles L. Lewis) 134
Diabetes Mellitus
—recent advances (Norman Burnstein) 256
Ear, Middle
—infections, treatment (S. G. Mounger) 178
Editorials
—22, 59, 86, 121, 152, 180, 207, 233, 262, 301, 328, 351
Ethics, Medical
—ethics of the doctor's wife (Mrs. G. Turner) 346
—(O. E. Ringold) 292
Eyes
—practical points in clinical gonioscopy (Samuel B. Johnson) 250
—treatment of infectious diseases of lids, conjunctiva, and cornea (James H. Allen) 78
Fluids
—patients, water and salt (H. Swan) 31
Fractures
—atlas of Rush pin technics (Supplement)
—emergency care and transportation of (Thomas H. Blake) 45
Gallbladder
—milk of calcium bile (W. H. Brandon) 58
—surgery (J. K. Avent) 280
Gynecology
—acute hemorrhagic emergencies (Joseph Hyde Pratt) 183
—use of cortisone (Blanche Lockard) 170
Heart - Diseases
—cardiac arrest (Curtis W. Caine, J. P. Melvin, Jr., and Rush E. Netterville) 74
—cardiac resuscitation (W. R. Webb) 312
—cardiac surgery (J. D. Hardy and F. H. Cole) 35
—coronary heart disease, present status (A. C. Guyton) 244
—current control efforts, and future needs (T. E. Hall) 201
Hysterectomy
—vaginal, indications and advantages (K. Ramsay O'Neal) 137
Infants
—orthopedic problems of infancy and childhood (Thomas H. Blake) 283
Infants, Newborn
—infections of (Margaret H. D. Smith) 277
Intestines
—acute obstruction (J. D. Rives and Walter F. Becker) 101
—massive hemorrhage from diverticulosis treated by radical subtotal colectomy (D. T. Brock, Jr. and J. V. King) 254
Jurisprudence, Medical
—tort liability of the physician (T. H. Hedge-

99347

- peth) 215
- *Kidneys*
  - —acute renal failure (A. J. Merrill) 334
- *Lip*
  - carcinoma (C. Smith) 305 (311)**
- *Lupus Erythematosus*
  - —syndrome occurring during apresoline therapy (E. L. Posey and S. L. Stephenson, Jr.) 43
- *Mid-South Post Grad. Med. Assembly*
  - —annual meeting, 1955 264
  - —president (R. B. Caldwell) 265
  - —president-elect 303
- *Mississippi State Medical Association*
  - —annual meeting, 1954 22
  - —annual meeting, 1955 (ed.) 328
  - —1955 program 323
  - —presidential address, 1954 (M. Q. Ewing) 54
  - —new president: C. H. McCall 60
  - —1954 roster of officers 24
- *Miss. State Penitentiary*
  - —hist. of research conducted 315
- *News and Comment*
  - —23, 60, 88, 123, 153, 209, 234, 269, 302, 352
- *Orthopedics*
  - —problems of infancy and childhood (Thomas H. Blake) 283
- *Ovary*
  - —hemangioma of the ovary with ascites (R. P. McBurney and M. Trumbull) 271
- *Paralysis, Cerebral*
  - —scholarships for special training 326
- *Pediatrics*
  - —ABSTRACTS FROM THE LITERATURE:
    - —atresia of the esophagus with tracheosophageal fistula 181
    - —complementary feeds—by spoon or bottle 354
    - —corticotropin and cortisone in idiopathic thrombocytopenic purpura 125
    - —effect of antimicrobial therapy on prognosis of primary tuberculosis 267
    - —fatal case of poliomyelitis in newborn infant delivered by cesarean section following maternal death due to poliomyelitis 236
    - —infantile spastic hemiplegia 303
    - —palliative treatment of poliomyelitis (use of colloidal iodine solution) 355
    - —successful treatment for infantile eczema 210
    - —terramycin in treatment of pneumonia 62
    - —treatment of tuberculous meningitis 91
- *Pelvis, Surgery*
  - —spinal analgesia; 200 cases (H. L. Wright, J. C. Weed, F. X. LeTard) 320
- *Peptic Ulcer*
  - —problems in diagnosis and management (James F. Crenshaw) 7
- *Physicians*
  - —daily dilemmas of the doctor's wife (Mrs. W. M. Wood) 358
- *Pregnancy*
  - —anemias, iron metabolism (H. G. Hamilton, R. S. Higgins and W. S. Alsop, Jr.) 1
  - —nausea and vomiting, bonamine therapy (R. F. Bass) 176
  - —severe complications as a result of chickenpox (R. Carter O'Ferrall) 118
- *Psoriasis*
  - —new treatment (Karl O. Stingily) 222
- *Public Health*
  - —legislation and health (F. L. Fowler) 339
  - —impact of research and education (Felix J. Underwood) 191
- *Public Health, Rural*
  - —Rural health—medicine's forward look (S. L. Bailey) 317
- *Public Relations*
  - --audit program (Durward Blakey) 14
- *Radioactivity*
  - —current status of radio-isotope therapy (R. R. Newell) 162
- *Respiration*
  - —hyperventilation syndrome (Raymond Barzilai) 187
- *Schools, Medical*
  - —clinical teachers for (W. T. Sanger) 300
  - —editorial 121, 328
  - —"geographic full-time employees" 327
  - —Mississippi's 4-yr. school 90
  - —the State university, its purpose (J. D. Williams) 260
- *Societies, Medical*
  - —Amer. Acad. of Gen. Pract. 180
  - —Amer. Inst. of Dental Medicine 322
  - —Sou. Med. Assn. meeting 153
- *Societies, Medical - State and Local*
  - —Amer. Cancer Society - Miss. Divsn. (ed.) 88, 233, 235
  - —Miss. Heart Assn. (ed.) 233
  - —Miss. Hosp. Assn. 153, 181
- *Med. Soc.—Local*
  - —N. E. Miss. Med. Soc. 237
  - —Wilkinson-Amite 90, 154, 237, 353
  - —Fifty-year club (ed.) 25, 61, 329
  - —FIFTY-YEAR CLUB
    - *Biographica*
      - Armstrong, Geo. Glaucus 27
      - Googe, Geo. Wm. 266
      - Gray, Walter Petway 27
      - Holman, Charlie Hinds 151
      - Land, Geo. Wm. 63
      - McRae, Kenneth Francis 266
      - Shannon, Hervey Linwood 266
      - Sutherland, Wade Hampton 238
      - Terry, Hal Mabry 151
      - Towns, Sherrod Ross 63
      - Whitfield, Richard Noble 353
      - Windham, James Herbert 238
- *Spinal Cord*
  - —tumors (B. S. Ray) 107
- *Stomach*
  - —cancer (A. Ochsner and J. Blalock) 127
  - —volvulus of (Thomas G. Barnes) 19
- *Surgery*
  - —gallbladder (J. K. Avent) 280
  - —newer therapeutic agents (Eugene Jabbour) 143
  - —plastic—problems and opportunities (Wm. Milton Adams) 241
- *Thyroid - Diseases*
  - —hashimoto's-struma lymphomatosa (W. Howard Kisner) 82
  - —recent trends in treatment (W. Edward French) 296
- *Tuberculosis*
  - —antibiotic and chemotherapy policy in home (Thurman T. Justice, Jr.) 149
  - —current control efforts and future needs in Mississippi (Lee R. Reid) 195
  - —pulmonary: pneumonectomy for (Watts R. Webb) 16
- *Tumors*
  - —hemangiomas of ovary with ascites (R. P. McBurney and Merlin Trumbull) 271
- *Urology*
  - —in general practice (V. F. Carey) 231
- *Uterus*
  - —hysterectomy, vaginal (K. Ramsay O'Neal) 137
- *Venereal Diseases*
  - —current control efforts and future needs in Miss. (William L. Bunch, Jr.) 204
- *War, Medical Service*
  - —development of a program for uniform care in disaster (L. W. Long) 45
  - —emergency resuscitation and anesthesia (C. W. Caine) 47
- *Woman's Auxiliary* 29, 64, 212, 239, 269, 357
- *Wounds*
  - —crushing, lacerating and penetrating—treatment (George E. Twente) 52

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Iron Metabolism in Pregnancy Anemias

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INTELLIGENT consideration of anemia in pregnant women was first announced in 1842 by Channing. Since then hundreds of authors have attacked the subject, but the variations in nomenclature and the multiplicity of techniques of hemoglobin determination, many such as the Talquist technique being no better than guesses, make their results essentially of historical interest only.

We have therefore adopted Holly's classification, to simplify the problem of nomenclature.

A. Anemias directly related to pregnancy
   1) iron deficiency anemia in pregnancy
   2) megaloblastic anemia in pregnancy
   3) hypoplastic anemia in pregnancy

B. Anemias not directly related to pregnancy
   1) sickle cell anemia
   2) hemolytic anemia
   3) Cooley's anemia
   4) anemia of infection, etc.

Group B are the anemias merely coincidentally associated with pregnancy. Although they may present a serious complication and may in turn be markedly aggravated by the pregnancy, they are not an intrinsic factor in the pregnancy *per se.* On the other hand, group A are the anemias that are an intrinsic problem and are produced by the presence of the pregnancy in the woman. Of these anemias, the large majority are of the iron deficiency type.

Due to the periodic menstrual blood loss in woman during her reproductive life, the female enters pregnancy usually in a rather precarious state of iron balance, and may spend her entire life prior to the menopause in a state of greater or lesser iron deficiency. Many a female child, born to an iron deficient mother, is iron deficient at birth, and being raised on a mediocre diet achieves maturity and enters upon her own reproductive activity without ever reaching an adequate iron balance.

The normal woman has an average total iron value of about 4.0 grams; about 700 mg. being in iron storage in the liver, spleen and bone marrow, about 3000 mg. being fixed in hemoglobin, and the residue being carried as transport iron in the binding beta globulin complex of the blood serum. The fixed iron in the entire cellular structure is negligible.

As pregnancy progresses to term and through delivery, a woman is subjected to a variety of iron losses. To compensate for her increased blood volume she must utilize 400 mg. of iron in additional hemoglobin synthesis. It is true that this iron is recaptured in the puerperium, but it is removed from availability during the pregnancy and represents an iron loss at this time in that it is temporarily unavailable. At this point her iron storage, if at the maximum when pregnancy began, is reduced to about 300 mg., 3400 mg. being fixed in hemoglobin. She loses less than 1 mg. of iron per day by excretion in urine, feces, and perspiration, so normally this can be ignored as being equalized by dietary absorption.

Lund showed that the daily diet of the female contains from 7 to 12 mg. of available iron. However, Moore shows that only 5 to 15 per cent of dietary iron can be absorbed, thus making from 0.5 to 1 mg. of iron the amount that can be absorbed daily from the diet. Hence, there is only from 150 to 250 mg. of iron that can be expected to be absorbed from the normal diet in the course of the entire pregnancy. Because of the loss of 400 mg. in additional hemoglobin synthesis, we have a deficit of from 150 to 250 mg. of iron from this source.

Holly shows that in the last trimester of pregnancy there is a tremendous drain on the maternal available iron, as approximately 500 mg. of iron must be transferred across the placenta to the fetus for the hemoglobin synthesis of the infant. If the mother has a normal iron storage of 700 mg., which was reduced to 300 mg. by her own additional hemoglobin synthesis, this transfer obviously leaves her with an iron deficit of at least 200 mg. At the time of delivery she will lose at least 100 mg. more of iron that is left in the placenta. If her blood loss is only an average one of from 150 to 250 cc. she will again lose another 100 mg. of her available iron.

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*Presented at the sixty-fifth annual meeting of the Mid-South Postgraduate Medical Assembly,, Memphis, Tennessee, Feb. 9-12, 1954.

If the woman nurses her child she will have an additional loss of 1 mg. of iron per day of nursing.

It is, therefore, obvious that any pregnancy is going to produce an iron deficit in any woman and unless energetic therapeutic steps are taken the woman must have an iron deficiency anemia unless she has an abnormally high iron storage at the time of conception. Graph II from Holly illustrates the iron interchange in the body.

The iron stored in the body is essentially located in the liver, spleen and bone marrow, where it is stored as ferritin although some may be deposited as hemosiderin. This iron is freely interchangeable between the storage site and the serum iron and is carried in the blood serum to the points of erythropoiesis. Whenever there is an iron deficiency, the first observable hematological evidence is a drop in serum iron values of the patient and a concomitant rise in the iron binding capacity of the serum with a concomitant rise in the erythrocyte protoporphyrin.

The serum iron represents the iron in transport in the body and is carried bound, in its ferric form, to a beta globulin which carries two atoms of ferric iron bound to one molecule of serum beta globulin. This iron binding beta globulin comprises about 3 per cent of the plasma protein. The capillaries are relatively permeable to the iron binding beta globulin and the iron-globulin complex can leave the blood stream as such, but Holly shows that most of the transported iron leaves the blood stream simply as diffusible ionized iron. It was formerly thought that the iron-globulin complex broke down in the placenta as well as that the blood cells broke down there and that the iron then crossed the placenta being taken by the fetal circulation in diffused ionized form. Vosburgh, however, using tracer technique has shown that the iron-globulin complex crossed the placenta as such in the transport of iron from mother to fetus. Tracer materials were found in the fetus within 40 minutes of the time of their administration to the mother prior to delivery. The transport iron that is attached to the beta globulin is derived from three basic sources: first, from sites of iron absorption, second, from hemoglobin destruction, and third, from sources of iron storage.

The latter two sources are good, economical re-utilization methods of usage of previously acquired and repeatedly used iron. However, since there is an iron deficit in pregnancy, the methods of acquisition of additional new iron are of prime importance. Moore has shown that the acid secretions of the stomach were of value only in reducing ferric forms of iron to the ferrous form thus promoting absorption, and he further postulated that if ferrous iron is administered it is useless to give additional hydrochloric acid therapeutically. This is at variance with the findings in our studies. Lund has shown aid in iron absorption by the presence of vitamin C and has found evidence of seasonal variations relating to lower amounts of dietary vitamin C in the spring of the year.

The mode of iron absorption from the intestinal tract is rather complicated and the daily absorption rate is strictly limited to a maximum of 5 mg. per day even on full dosages of supplementary iron. According to Granick iron moves from the intestinal lumen into the mucosal cell as a one-way mechanism. The iron enters the cell in its ferrous form where it is oxidized to its ferric form and then combines with apoferritin to form ferritin. The saturation of the cell produces "mucosal block" to further absorption until the ferritin in the cell has moved out into the blood stream with the iron again reduced to its ferrous form. In the blood stream the iron is again oxidized to its ferric form where it combines with the iron binding beta globulin for transport to usage for hemoglobin synthesis or for storage.

It is generally conceded that the pregnant woman has an increased ability to absorb dietary and supplementary orally administered iron. However, in some patients there is a disturbance in the absorptive mechanism even though the patient is on an adequate vitamin C bearing diet and even though the iron be of the ferrous type. These are the patients who develop iron deficiency in pregnancy even though their diets and supplementary oral iron administration are adequate. In addition to performing serum iron and serum iron binding capacity studies to diagnose these anemias accurately as being iron deficiency in type, there are two other reasonably easy methods of confirming the diagnosis. These are erythrocyte protoporphyrin studies and bone marrow studies.

A variety of workers have shown that there is a definite increase of erythrocyte protoporphyrin in all forms of iron deficiency anemias.

Likewise there have been many studies of the bone marrow in normal pregnancy, all of which agree that there is a marked hyperplasia in the normal bone marrow with a myeloid-erythroid volume increase which appears from the fourth to the fifth month of gestation and persists for six to eight weeks postpartum. The existence of iron deficiency gives a rise of the myeloid-erythroid volume along with significant increases in the normoblast count. Successful iron therapy returns the myeloid-erythroid volume to the normal for pregnancy as well as does reduce the normoblast count.

Thus iron deficiency anemia in pregnancy is characterized by reduced hemoglobin values, reduced serum iron values, increased serum iron binding capacity, increased erythrocyte protoporphyrin values, and increased normoblast counts in the bone marrow with increased myeloid-erythroid volume in the bone marrow. This condition responds to orally administered iron and, in the event of failure of the absorptive mechanism, responds to intravenously administered iron.

All authors have agreed that a majority of women respond satisfactorily to oral iron therapy. However, all studies of iron deficiency anemia in pregnancy show the presence of a group who are typically iron deficient and yet who do not respond to oral iron therapy even though their diets are adequate, their iron administration is adequate and though they are given additional vitamin C and hydrochloric acid. These are the patients of inadequate iron absorption, the so-called "mucosal block" group of patients. These patients have been treated by intravenously administered iron monoxide in sucrose in a 2 per cent colloidal suspension. The reports of several authors all show this is a successful method of by-passing the problem of "mucosal block", as well as a rapid method of increasing hemoglobin synthesis where the iron deficiency anemia is severe and time is too short for the slower method of oral administration. It is also valuable in those occasional patients who cannot tolerate orally administered iron. They all report a significant occurrence of reactions, but slow administration of the solution and careful observation prevented any serious effects.

Megaloblastic anemia in pregnancy is a reasonably rare occurrence and like the other intrinsic anemias in pregnancy is not to be accurately diagnosed on studies of the morphology of the peripheral cells as the peripheral cell changes occur late and are subject to great error in evaluation. The diagnosis can be made accurately only by bone marrow studies. The serum iron values are high, the iron binding capacity is low and the erythrocyte protoporphyrin is normal in these patients as shown by Holly. The marrow biopsies show in decreased normoblasts and neutrophils with large numbers of megaloblasts which are present in sufficient quantity to give extremely high myeloid-erythroid values. Both Holly and Moore state unequivocally that megaloblastic anemia in pregnancy is characterized by its uniformly successful treatment with folic acid with the abnormal hematological findings reverting to normal under this therapy. It is interesting to note that Holly also induced remissions in megaloblastic anemia by administration of ascorbic acid and vitamin B_{12}. This is the only condition in pregnancy where the usage of folic acid, vitamin B_{12}, or the other liver compounds is of any value or where there is any rationale for their usage.

Fortunately hypoplastic anemia in pregnancy occurs quite uncommonly, as these patients do not respond to any form of therapy be it oral iron, intravenous iron, folic acid, ascorbic acid, vitamin B^{12}, hydrochloric acid or liver extract. The only therapeutic measure that is of aid to these women is repeated blood transfusions in the more acute cases. The serum iron, the iron binding capacity and the erythrocyte protoporphyrin are normal and the myeloid-erythroid per cent is normal or low on bone marrow biopsy. The studies of bone biopsies in these women show a hypoplastic bone marrow with small mature cells with a reduction in the number of normoblasts. After the pregnancy is terminated the bone marrow resumes function and these patients return to normal.

Lund and Wilson find a number of cases where adequate erythropoiesis is masked by excessive plasma volume increases, but in the large majority of cases the hemodilution factor is small and is associated with hypoferremia and increased erythrocyte protoporphyrin. Most of these cases will respond to adequate oral or in the severe cases to intravenous iron therapy.

The margin of error in hemoglobin determinations by visual techniques such as Haden-Hauser was found to be quite significant, so all data were compiled from determinations made using the Evelyn photo-electric method. Red cell morphology changes were found to be significant only in a small percentage of cases, to occur late and to be subject to individual interpretations. The hemoglobin values were found to vary by Holly with the significant variations in serum iron, iron binding capacity and erythrocyte protoporphyrin. Therefore, in this series of cases the status of the patient as relates to her normalcy or anemia is expressed in hemoglobin percentage values, converting on the scale where 15.5 grams per cent hemoglobin equals 100 per cent and 12 grams per cent hemoglobin equals 77 per cent.

In determining whether therapy was successful or a failure in this series an arbitrary level of 75 per cent hemoglobin was chosen as our standard. If the patient's hemoglobin was maintained above this level, or in the event that anemia occurred, if the level was brought to or above this point and there maintained until delivery, the patient was recorded as one who received successful therapy. If the hemoglobin was not raised to 75 per cent and maintained there the case was considered a failure. By this criterion and averaging the entire series together the women in this series were successfully treated. In a previous study of ours we found no significant change in age or parity. Accordingly, in this series the age and parity factor is ignored.

In this series 1746 consecutive women were treated, all of them being given 1170 mg. of ferrous sulfate with molybdenum oxide daily. Of this group 1292 patients or 74 per cent corresponded to our criterion of successful therapy. 554 women or 26 per cent did not maintain their hemoglobin level at or above 75 per cent on oral iron therapy alone.

Of these women 237 were then given hydrochloric acid therapy, being given the equivalent of 10 minims of U.S.P. dilute hydrochloric acid three times a day along with their iron ration. If Moore's therapy that hydrochloric acid is useful only in reducing ferric iron to ferrous iron one would expect no therapeutic effect from this regime. Of these 237 patients 177 patients, or 75 per cent, showed a successful rise and maintenance of their hemoglobin level. 60 of these women, or 25 per cent, did not show a satisfactory response. Inasmuch as this satisfactory response to the addition of hydrochloric acid represents 10 per cent of the total series, the figure then becomes definitely significant as to the potential value of hydrochloric acid therapy in these women. Whether it is a matter of an alteration in their absorption factor I am unprepared to say.

There were 118 women who received intravenous iron therapy. These women were given 900 mg. of iron monoxide in sucrose containing 20 mg. per cc. in colloidal suspension. The therapeutic agent used was Sharp and Dohme's proferrin. The dosage was calculated on the basis that it would require 500 mg. to supply the fetal need and to give the mother 400 additional mg. to replenish her depleted iron reserve. No effects of hemochromatosis were observed. It was given in five broken doses. The first dose given was 100 mg. followed by four doses of 200 mg. given at three-day intervals. It was administered in the antecubital vein with a number 24 needle and was given slowly at the rate of less than 1 cc. per minute. In the first 70 cases there were reactions of sufficient severity to warrant interruption of therapy in 13 cases. In the last 58 cases the reaction, using the newly buffered solution, were of sufficient severity to warrant therapy interruption in only 3 cases. Thus the over-all severe reaction per cent was 13½ per cent, but in the newer solution the rate of severe reaction is only 6 per cent. The severe reactions causing interruption of therapy were severe flushing, dyspnea and faintness.

Of the 118 cases given the intravenous iron 86 cases or 73 per cent were classified as successfully treated. 32 cases or 27 per cent were classified as failures. Of the 32 cases, however, 15 cases responded subsequently to folic acid therapy which means that they were megaloblastic anemias leaving us 17 cases of the unsuccessful who would be classified as hypoplastic and therefore totally refractory cases.

The treatment results were interesting in that the true iron deficiency anemias due to failure of intestinal absorption responded dramatically. This was to be expected as barring bone marrow disturbance the problem of erythropoiesis in pregnancy is largely, excepting a few cases of excess plasma volume, one of delivering an adequate supply of available iron to the bone marrow for hemoglobin synthesis.

Current unpublished work that is being done by Dr. Holly at the University of Minnesota on the use of cobalt in connection with iron and its stimulatory effect on bone marrow, indicates how we can correct some of the 11 per cent of our unsuccessful cases, although a majority of them were the result of the patient reporting in late and fell just below the arbitrary level of successful result.

FIGURE I

CLASSIFICATION OF ANEMIAS

A. Anemias directly related to pregnancy
   1. Iron deficiency anemia in pregnancy
   2. Megaloblastic anemia in pregnancy
   3. Hypoplastic anemia in pregnancy
B. Anemias not directly related to pregnancy
   1. Sickle cell anemia
   2. Hemolytic anemia
   3. Cooley's anemia
   4. Anemia of infection, etc.

FIGURE II
IRON TRANSPORT

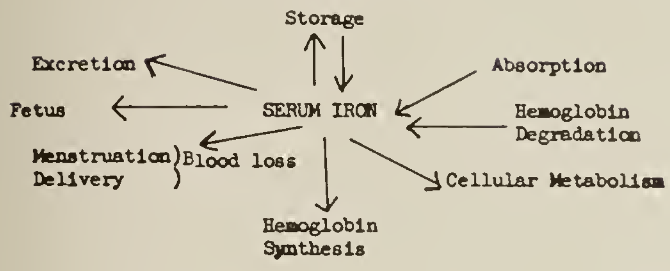
Storage
Excretion
Absorption
Fetus
SERUM IRON
Hemoglobin Degradation
Menstruation
Delivery
Blood loss
Cellular Metabolism
Hemoglobin Synthesis

FIGURE III
IRON ABSORPTION

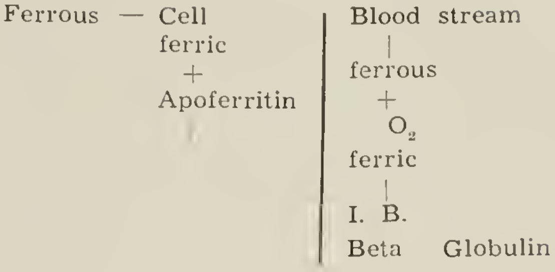
Ferrous — Cell
ferric
+
Apoferritin
Blood stream
ferrous
+
O2
ferric
I. B.
Beta Globulin

FIGURE IV

Gross Monthly Hbg. Average 1746 Cases 15.5 Grams Per Cent Equals 100% (Evelyn technique)

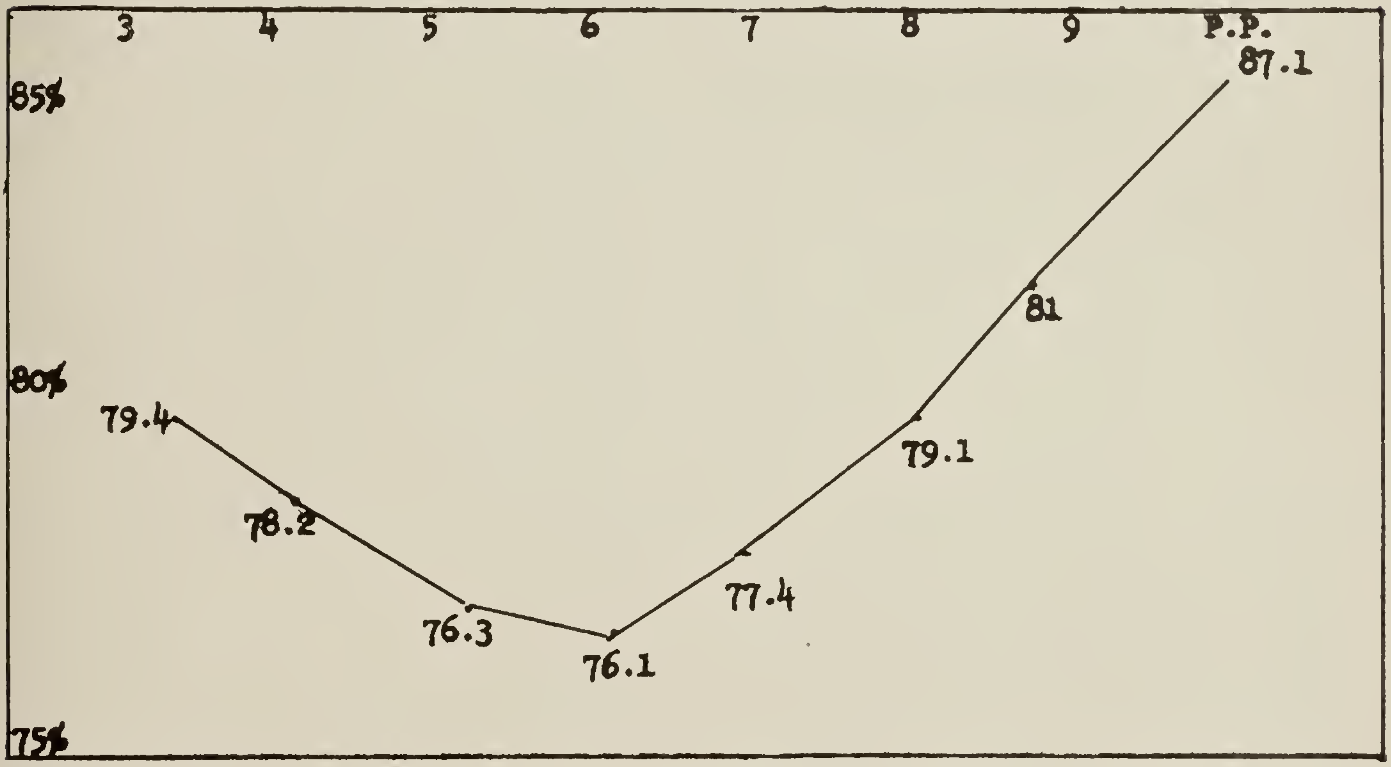

FIGURE V
TREATMENT RESULTS

	Number Treated	Success		Failure	
		Number	Per Cent	Number	Per Cent
Oral Iron	1746	1292	74%	554	26%
Oral Iron with HCI	237	177	75%	60	25%
Intravenous Iron	118	86	73%	32*	27%
Total Results 3 Methods	1746	1555	89%	191	11%

Oral Iron - 1170 mgm. daily Molybdenum ferrous sulfate
HCI - 3 capsules daily glutamic acid hydrochloride, each capsule equals 10 minim U.S.P. dilute HCI.

*Include fifteen refractory cases who subsequently responded to folic acid therapy, hence megaloblastic anemia.

CONCLUSIONS: In considering our unsuccessful results other than those in hypoplastic anemia or Cooley's anemia, one is struck by the fact that therapy should have been started in most of them earlier in the pregnancy. If the problem is one of supplying additional iron for hemoglobin synthesis and the patient is going to have an iron deficit of at least 700 mg., i.e. 500 mg. to the baby, 100 mg. in the placenta and 100 mg. in the blood loss, then it should obviously be supplied in advance of the deficit. Since supplementary oral iron can be absorbed at a maximum rate of only 5 mg. per day, and since the deficit at the end of pregnancy is about 700 mg., it is obvious that oral iron therapy should be instituted at least 150 days before the anticipated date of delivery. Likewise particularly in the lactating woman, iron therapy should be continued into the puerperium.

In the event of failure to achieve or maintain satisfactory hemoglobin levels on oral iron therapy alone, 10 per cent of women will have a satisfactory hemopoietic response if hydrochloric acid therapy is added to the oral iron.

About 75 per cent of patients will demonstrate a failure to absorb iron when is it orally administered with or without hydrochloric acid. These patients can be given intravenous iron therapy with relative safety, if it is given with proper precautions.

Fifteen patients, or less than 1 per cent, demonstrated the criteria of megaloblastic anemia. Seventeen cases, or less than 1 per cent, demonstrated the criteria of hypoplastic anemia.

Folic acid therapy is of use only in the megaloblastic anemias in pregnancy.

The problem of hemoglobin synthesis in the pregnant woman, except in a very small percentage of patients, is essentially one of delivering an adequate amount of iron to her bone marrow.

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Problems in the Diagnosis and Management of Peptic Ulcer*

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IN THE PRACTICE of general medicine, if one has mastered the fundamentals of gastro-intestinal diseases, along with cardiology, he has for the most part conquered the major problem.[1] With the accumulation of our knowledge regarding the physiology and pathological changes within the gastro-intestinal tract, we are improving constantly in our clinical evaluation of many diagnostic and therapeutic situations. Especially is this true regarding the pathology of pain and its tremendous help in the differential diagnosis of abdominal conditions. The peptic ulcer problem has been greatly clarified from this approach.

In this discussion of peptic ulcer, many of the facts now recognized as common knowledge in diagnosis and treatment will be assumed and omitted. Special emphasis will be placed upon pain in differential diagnosis, and more especially as pertains to the complications of penetration and perforation of ulcer. With respect to laboratory aids in diagnosis, comments will be limited to the gastric analysis, except for mention of those associated tests still of value for diagnostic purposes.

The true cause of peptic ulcer, as yet, remains unknown. It appears to represent a local manifestation of a constitutional disturbance. Mental trauma and dietary indiscretion are aggravating factors producing hyperfunction of gastric secretory, motor, and vascular mechanisms. Hydrochloric acid in association with pepsin, in no specific concentration, is generally accepted as the chief aggressor. In predisposed individuals, the weakened gastric mucosa is deficient in the protective substance mucin; also abnormal circulatory changes (anemia, hyperemia) increase the tissue susceptibility to irritant factors. It is likely that endocrine deviations such as adolescence, and menopause, also arteriosclerotic circulatory changes in the aged, and dietary habits of certain geograpical areas are contributing factors. Proper diagnosis and therapy are necessarily based on a clear understanding of the etiology and physiological principles underlying peptic ulcer. Sandweiss[2] has summarized the physiological principles as aggressive and defensive factors in peptic ulcer. Among the aggressive factors are: 1) hypersecretion, including both hydrochloric acid and pepsin; 2) hypermotility with increased tonus and peristalsis; 3) vascular changes, including hyperemia or anemia; 4) gastrin; 5) secretagogues; 6) vagi. Acting as defensive factors are: 1) mucus; 2) Brunner's gland secretion; 3) pancreatic secretion; 4) bile; 5) succus entericus; 6) enterogastrone; 7) enteroanthelone.

Smith and Rivers[3] have described five types of mechanisms exerting their influence upon ulcer formation: 1) infectious; 2) nutritional; 3) tissue trauma; 4) chemical factors; 5) constitutional diathesis factor.

In general, the evidence at hand today strongly favors more than one factor operating in the production of pain in peptic ulcer. It is believed that, in addition to the chemical hypothesis (excessive secretion of hydrochloric acid), disturbances of motor function in the stomach and duodenum or muscular spasms about or in the region of the ulcer itself, may also play a part.

A good history remains of paramount importance in the correct diagnosis of peptic ulcer. Within the history, the symptom of pain is singularly the most important from a diagnostic standpoint.

The following outline is an excellent guide in the differential diagnosis of digestive tract pain.

I. Location
    A. Localized
    B. Diffuse
II. Duration
III. Onset
IV. Character
    A. Severity
    B. Radiation
    C. What brings on
    D. What relieves
V. Periodic attacks
    A. Time between attacks
    B. Health between attacks
VI. Position or movement effects
VII. Change in character
    A. Extension
    B. Complication

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*Delivered at the quarterly meeting of the Northeast Mississippi Medical Society, Booneville, Miss., March 9, 1954.

VIII. Relation to other digestive tract diseases
IX. Relation to extra digestive tract diseases
IIX. Previous examinations
    A. Laboratory tests
    B. X-Rays
    C. Diagnoses
    D. Treatment
    E. Operations

It is naturally assumed that a complete history is necessary in every case suspected of peptic ulcer. Also, a complete physical examination is to be performed in each case of possible peptic ulcer, for other diseases, even more severe than ulcer, may be detected. Chief attention should be paid to the abdomen for tenderness, guard, or spasm, and the presence of masses. In cases of pyloric obstruction, a succession splash may be obtained by shaking the patient; active peristalsis may be observed in thin individuals. A rectal examination should be performed to determine the presence of tarry stools. In bleeders, dehydration is obvious along with a pale, pasty skin. Infectious processes should be searched for, as well as nutritional deficiencies.

Certain laboratory aids remain an important part in the diagnosis of peptic ulcer. Regardless of recent controversy concerning the necessity of the gastric analysis, in my opinion, it continues to be a definite aid, especially as regards the presence of hydrochloric acid. Recently a study of the importance of the fluoroscopic positioning of the gastric tube was made.[5] Of one hundred cases studied, thirty-one were found to have the gastric tube correctly positioned. Of the 31 correct placements, 19 were considered ideal without the tube curving upon itself. The tests were performed by competent technicians of several years experience in this type work. Unless the technician is relatively certain that the gastric tube is in the proper position and gastric contents are being withdrawn, the patient should be taken to the fluoroscopic room for correct positioning of the tube, if an authentic gastric analysis is to be expected.

Nocturnal gastric secretion has been studied in great detail by Levin.[6] He has shown that significant differences exist between the nocturnal gastric secretion of normal persons and patients with duodenal ulcer, gastric ulcer, and gastric carcinoma. He found the volume and concentration of free hydrochloric acid are highest in patients with duodenal ulcer. No significant difference was detected between the volume of gastric secretion of normal persons and those with gastric ulcer, but the output of acid tends to be lower in the latter. The secretory rate was lowest in those patients suffering with gastric carcinoma. The gastric secretion is a continuous process in the four groups studied. The secretion of free hydrochloric acid is usually not a continuous process, however, except in the duodenal ulcer patient, where it is secreted in much larger quantities throughout the entire night than in a normal individual. The greatest secretion of acid occurred around 2:30 a.m. in the majority of subjects studied.

THE PAIN OF PEPTIC ULCER

It is recognized that some peptic ulcers will not produce pain. Also, a minority of ulcers cause such a variable pattern of symptoms that these are in no way diagnostic. The third and largest group are those productive of rather specific syndromes of pain. In general, from a clinical standpoint, the symptoms of peptic ulcer, with regard to pain, may be divided into those of visceral origin, those produced by invasion of somatic structures, and those produced by involvement of the phrenic nerve.

Smith and Rivers,[3] after reviewing the different syndromes caused by peptic ulcer, have separated them into five distinct groups resulting from pathological changes: 1) visceral syndrome of ulcer without referred pain; 2) visceral syndrome of ulcer with referred pain (summation syndrome); 3) admixture of visceral and somatic syndromes of ulcer; 4) somatic syndrome of ulcer obliterating the visceral syndrome; 5) phrenic syndrome of ulcer.

A study of these syndromes enables the clinician to recognize specific organized patterns representing certain histopathological changes for the lesion under question. 1) The first type syndrome refers to a peptic ulcer, confined to the visceral wall, which produces pain impulses transmitted along afferent nerve fibers in the splanchnic pathway. This type of syndrome is that which Moynihan said could be diagnosed by telephone. Whether the ulcer be gastric, duodenal, or gastro-jepunal, the general characteristics are the same. In this syndrome, the usual sites of pain produced by simple uncomplicated ulcer are: a) in duodenal ulcer in the right epigastric region near the mid-line, b) in gastric ulcer in the left epigastric region near the mid-line; c) in gastro-jejunal ulcer just below the umbilical region, slightly to the left of the mid-line.

2) In the visceral syndrome of ulcer with referred pain (summation syndrome), the ulcer is of large size, subacutely inflamed, and often multiple ulcers are present, but the ulcer remains within the visceral wall without penetration. Referral occurs at the height of pain. Here the pain of duodenal ulcer is referred from its usual uncomplicated site superiorly into the right upper quadrant and the subcostal margin. The pain of gastric ulcer is referred correspondingly to the left subcostal margin. The pain of gastro-jejunal ulcer, from its uncomplicated para-umbilical region, is referred to both lower quadrants. It would seem that the pain impulses, which begin in the visceral wall, are transmitted through the afferent nerves in the splanchnic pathway, overflow through marked summation, producing responses through fibers of the spinal nerves. Those resulting sensations are felt as if developing in the cutaneous areas innervated by these same spinal nerves. As the pathologic process extends, the more impulses are transmitted into the somatic structures with gradual loss of the original visceral syndrome.

3) Admixture of visceral and somatic syndromes of ulcer: Through the process of perforating a peptic ulcer, leaves its original visceral area, and invades neighboring somatic structures. Pain impulses are then received from somatic, as well as visceral structures. Morley, renowned surgeon, observed the shifting of pain caused by ulcers in different phases of penetration. It was his belief that the tissues surrounding the intestinal wall, parietal peritoneum, lesser omental tissues, mesocolon, and mesentery, are all supplied by sensory spinal nerves. An ulcer invading these tissues would send impulses over the nerves supplying these structures. The pain, then, would be referred as existing in the cutaneous areas supplied by these same spinal nerves.

4) Somatic syndrome of ulcer obliterating the visceral syndrome: When further invasion of somatic structures exists, the usual ulcer symptoms often fade away and are replaced by those produced from the somatic structures.

5) Phrenic syndrome of ulcer: In this type of syndrome, the phrenic nerve has been invaded by a perforated ulcer with pain being referred to the cervical region, from the epigastrium. An ulcer high in the fundus of the stomach, perforating beneath the left diaphragm, will thus send pain impulses to the cord over the left splanchnic nerve. Impulses of the somatic type are transmitted by way of the phrenic nerve to the cervical portion of the cord from which they are referred along somatic pathways to the left shoulder.

A comparison of the clinical characteristics of gastric and duodenal ulcer pain are of diagnostic interest. In general, the characteristics of the two types of ulcer are somewhat similar. In the average case, certain symptoms serve to differentiate one type of ulcer from the other, but it need be emphasized that many cases are borderline, and actual localization of the ulcer is, at times, impossible until roentgenologic studies are performed. The pain of peptic ulcer is deep, rather than a superficial type. Often the pain is described as gnawing, burning, or aching. Ulcer pain is usually of a constant type in contrast to the intermittent waves of pain associated with intestinal colic. The discomfort begins, gradually increases, reaching a more or less constant level, then decreases, and after a few minutes or hours, fades away. The relationship of food intake may, at times, differentiate a gastric from a duodenal ulcer. Often with gastric ulcer, the pain may come from one-half to two hours after a meal, and disappear before the next meal is consumed, the so-called "food-comfort" rhythm. This is in contrast to the duodenal ulcer pain which usually comes three to four hours after eating and does not ease until the next meal is ingested, unless food or soda is taken. This is referred to as the "pain-food-ease" type of rhythm. Hunger pain is more common in duodenal ulcer. Nausea and vomiting are more common in gastric ulcer. Vomiting produces relief in both types of ulcer. The occurrence of night pain is more prevalent in duodenal ulcer, occurring usually between two and three a.m., when the patient seeks relief by food or alkali. In about one fourth of the cases, the two types of ulcers are indistinguishable, until the ulcer begins its penetrating or perforating qualities.

The complications of peptic ulcer are perforation, hemorrhage, and obstruction. Before the actual perforation of an ulcer occurs, a process of burrowing takes place in the wall of the viscus known as penetration. When this occurs, the usual picture of uncomplicated ulcer with its visceral components of pain changes:

1) Gastric ulcer perforating into the lesser omental tissues is suspected when changes occur from the usual uncomplicated picture to involve intractable pain extending from the epigastrium to the lower rib margins, lower substernal region, and into the left subscapular area. Physical examination will reveal marked epigastric tenderness

and little more. X-ray examination will show a perforating ulcer on the lesser curvature. A crater is often seen in the gastric ulcer, and a malignancy must be ruled out.

2) The most common site to which a gastric ulcer will perforate is the pancreas. The pancreas is in direct line for the most common site of stomach ulcers along the lesser curvature and posterior margins. From the original pain of gastric ulcer, with its short intermittent characteristics relieved by food, alkali, and vomiting, the pain becomes progressively more severe, and less relief is obtained from the usual methods. Vomiting often follows and the pain becomes more localized to the left upper abdominal quadrant. It frequently extends into the lower left thorax and into the back at the level of the sixth, seventh, and eighth dorsal vertebrae. This second stage of pain results from the subacute penetration of the ulcer with involvement of the lesser omental tissues. The stage of actual invasion to the pancreatic tissue is productive of severe pain, the patient often requiring opiates for relief. Some are accused of being morphine addicts. In an effort to produce relief, characteristic postures are assumed with the patient's bending forward in the knee chest position, or bending over a chair, or on the side of the bed. Night pain is outstanding. If the head of the pancreas be involved, there is an extension to the right just above the umbilicus. The pain tends to assume a lower position than originally. In the back, at the level of L_1 - L_3, excruciating pain is produced.

3) Gastric ulcers perforating to the mesocolon may give rise to pain in the low mid-abdomen and slightly to the right of the mid-line, similar to pain which originates in the tail of the pancreas.

4) Gastric ulcers, high in the stomach wall, may perforate to the diaphragm with pain in the left subcostal and lower thoracic regions, radiating to the neck and left shoulder region, and into the back in the left subscapular region.

Numerous somatic structures may be involved by duodenal ulcers, also, in their path of penetration and perforation:

1) A duodenal ulcer perforating to the lesser omental structures will produce pain radiating from its original source in the mid-epigastric area, slightly to the right of the mid-line, into the right subcostal area, and lower right thorax, also into the right subscapular region.

2) With pancreatic perforation, the pain shifts from its original source just to the right of the mid epigastrium into the right subcostal region and with the process extending into the actual pancreatic tissue, pain is experienced at the level of L_1 - L_3 in the back. Physical examination shows deep tenderness in the region of the pancreas and slightly to the right of the mid line in the epigastrium. Occasionally a tender epigastric mass may be felt. The serum amylase and lipase levels are elevated, if the tests are performed at the proper times. X-ray will reveal the duodenal ulcer.

3) A duodenal ulcer may perforate into the base of the gallbladder and involve the mesocolon to the hepatic flexure. The original pain will shift into the region of the right subcostal margin and somewhat inferiorly from this point into the right lower quadrant. In the back, it will locate to the right of the upper lumbar region.

4) Duodenal ulcer may perforate to the hepatoduodenal ligament with involvement of the common duct, resulting in jaundice. From the original site of the pain in the mid epigastrium, radiation will be observed in the right upper quadrant and the subcostal region. Pain just inferior to this region in the right upper quadrant and radiating into the back, just beneath the right subscapular area, suggests involvement of the common duct.

5) Perforation into the pancreas may also occur from a duodenal ulcer at a lower level, thus affecting the common duct in its passage through this region. Jaundice may be associated with this lesion.

The complication of hemorrhage is a very frequent occurrence in post-bulbar duodenal ulcers.[7] Lesions in this portion of the loop bleed more often than the usual cap ulcer and consequently the incidence of surgical intervention is higher.

In determining the status of gastric ulcer treatment, certain fundamental differences are known to exist between gastric and duodenal ulcers. The majority of patients with duodenal ulcer are men, whereas, the sex distribution of gastric ulcer is about equal. The deleterious effects of nervous tension are more manifest in those with duodenal ulcer than in those with gastric ulcer. It is the opinion of Swynnerton and Tanner[5] that duodenal ulcers occur largely in young adults with thick hypersecreting gastric mucosa, whereas, gastric ulcers appear in middle aged persons with normal or thinning mucosa and normal or decreased gastric acidity. The differentiation of benign and malignant gastric ulcers is indeed a disturbing and difficult problem without the aid of a biopsy. It is dangerous to rely too heavily on the location of the lesion in the stomach, the size of the lesion, or the age of the patient. There appears to be mounting evidence that benign ulcers do not undergo malignant degeneration as formerly thought, but that ulcers found to be malignant were malignant from the start. Many gastric ulcers, it is recognized, will heal spontaneously in response to proper dietary measures, bed rest, and drug therapy. The strong belief often held that all gastric ulcers should be removed when the diagnosis is first established is seemingly losing ground in favor of a very careful preliminary trial of medical management.[9] A more generous attitude has always been held regarding the treatment of lesser curvature ulcers as regarding greater curvature ulcers, with the latter almost invariably tending to possess greater malignant potentialities.

The pre-pyloric ulcer must also be observed with more caution than the lesser curvature type. Because of the more difficult operative position of juxtaesophageal or high lying gastric ulcers, the tendency is for longer periods of medical trial before actual surgical intervention is entertained. With the help of gastroscopy and improved methods in cytological diagnosis, a more refined accuracy in diagnoses seems imminent.

In general, the patient with gastric ulcer should be hospitalized. The medical regimen is very similar to that of active duodenal ulcer. Follow-up roentgen studies and a possible gastroscopy should be undertaken every 10-14 days. If the ulcer crater has not decreased conspicuously within two to three weeks or completely healed in five to six weeks, surgery is indicated.

DUODENAL ULCER UNCOMPLICATED, ACTIVE OR ACUTE PHASE[10]

1) *Rest* is necessary in all cases, preferably by hospitalization. Home bed rest is less desirable. Only under special circumstances is work to be continued. Two weeks are usually indicated for the mild cases, up to six weeks for the more severe cases.

2) *Diet.* For the first three days hourly feedings from 7 a.m. until 9 p.m. and during the night, if awake, of a three ounce mixture of half cream and half milk are used. Three ounces of strained orange juice are offered at 7 a.m., 1 p.m., and 7 p.m. Two tablespoonfuls of protein by hypodermic. If no nausea or vomiting is present belladonna is begun with 0.6 cc. (10 minims) three times daily before meals, with increase daily to physiologic effect. A useful preparation during the first week is a combination of atropine sulfate hydrolysate in milk or juice, four times a day are added for nutritional and neutralizing purposes. Multivitamin preparations are given twice daily to supplement nutritional needs. Usually after the third day the patient welcomes a bland diet with six feedings daily. Hourly milk-cream mixtures may supplement bland feedings, and especially during the night.

3) *Antispasmodics.* If the patient is vomiting, a combination of atropine grains 1/150 with phenobarbital grains 1, is given three times a day before the usual meal time, and at bed time gr. 1/150 with phenobarbital gr. 1/3 in capsules to be taken, 1, three times a day, 20 minutes before meals, and at bedtime. These are to be continued as long as necessary. The inclusion of barbiturates in antispasmodic preparations is warranted because the sedative seems to reduce the neurogenic impulses that promote disorders of gastro-intestinal motility. A valuable supplement to the conventional medical management of peptic ulcer is the newer anticholinergic drugs. They are most beneficial as pain relievers during the active phase of peptic ulcer. Of the numerous drugs in this group available today, the most satisfactory appear to be probanthine, pamine, antrenyl, and prantal. It must be admitted, however, in many cases that the great advantages which these newer drugs are said to possess over atropine are indeed questionable.

4) *Antacids.* The ideal antacid is one acting promptly, maintaining neutralization of the gastric acid for prolonged periods, not causing rebound stimulation of the gastric secretion, and not producing alkalosis. Calcium carbonate is seemingly the most effective. It is relatively insoluble, and does not cause alkalosis, if used in proper dosage. The dosage schedule is from two to four grams, every one to two hours, from 7:30 a.m. to 9:30 p.m., and during the night if awake. Aluminum hydroxide, drams two, on the half-hour, every two hours, from 7:30 a.m. to 9:30 p.m., and during the night, if awake, is also an effective antacid. Magnesium trisilicate and tribasic calcium or magnesium phosphate are adequate, but considered less effective than calcium carbonate or aluminum hydroxide. Sodium bicarbonate, by its immediate action, produces rapid relief, but is highly absorbable, and is likely to produce alkalosis over a period of time. Winklestein's continuous intragastric drip therapy is sometimes used in the refractory cases. Sodium carboxymethylcellulose and the onion exchange resins have no demonstrable advantage

over the above mentioned neutralizers.

5) *Laxative.* Mild alkaline laxatives are used as needed.

6) *Sedation.* Phenobarbital, either separately or in combination with atropine in half grain doses, three times a day, is beneficial, especially during the first few weeks of therapy. This may be discontinued as indicated.

7) *Tobacco* and *alcohol* should be eliminated.

8) *Continuous night suction.* When pain is severe, suction is used in the rare case.

9) *Gastric analysis* and *x-ray* combination are indicated. No gastroscopy is needed.

10) *Follow-up studies* in one month, then, three to six months as needed.

11) *Surgery,* only if prolonged medical therapy fails.

PENETRATING ULCERS

Where penetration (usually into the pancreas) is likely, the following is recommended:

1) Nothing by mouth.

2) Intravenous fluids, that is glucose, and saline as indicated.

3) Atropine sulfate grains 1/150 with phenobarbital grains 1, every six hours as needed, by hypodermic.

4) Demerol 50 - 100 mgm. every four hours as needed for pain.

5) Continuous gastric aspiration for 48 - 72 hours.

BETWEEN ATTACKS (INTERIM PHASE)

1) Activity in moderation. Avoid physical and mental fatigue.

2) *Diet.* Bland diet—progressive, reaching three regular meals daily with immediate feedings of milk and cream and juice mixtures. An additional milk-cream feeding before retiring is beneficial.

3) Medication necessary only when indicated for recurrence of symptoms. Often they may be discontinued.

4) Alcohol and tobacco are preferably forbidden.

5) Follow-up studies in six to twelve months as indicated.

MARGINAL ULCER

Medical schedule is similar to that for active duodenal ulcer. As soon as feasible, x-ray and gastroscopy should be performed. If medical therapy fails, surgery is indicated.

COMPLICATIONS

Peptic ulcer may be complicated by perforation, hemorrhage, or obstruction. Immediate surgery is to be performed in perforation. It is now generally agreed that the expectant method of treatment has been abandoned in favor of early laparotomy in every case, if at all possible. Pre-operative consists of nothing by mouth, continuous gastric suction, morphine, and intravenous fluids. Perforated peptic ulcers which have walled off are generally treated by surgical means as in acute perforation; however, in certain selected cases conservative therapy may be the wisest choice.[11], [12]

In hemorrhage, hospitalization is preferred to bed rest at home. In the absence of vomiting, feeding, and antacid therapy are preferable to starvation. Some authorities (Jordan) believe that nothing by mouth should be given for 48 - 72 hours, and feedings then, only if signs of continued hemorrhage are absent. Feedings are similar to those used in the first three days of acute, uncomplicated, duodenal ulcer management. Antispasmodics and antacids are those used for active uncomplicated duodenal ulcer. Should nausea and vomiting be present, atropine sulfate grains 1/150 with sodium phenobarbital grains 1 by hypodermic every six hours, and at midnight are usually preferable to morphine, since the latter, in some cases, tends to aggravate these symptoms. Should restlessness and discomfort not be controlled by the atropine and phenobarbital combination, then morphine may be given. When necessary, transfusions should be available. If the patient be in shock, the usual treatment for shock is undertaken. If nausea and vomiting continue, intravenous fluids are given until the patient is able to retain the feedings. The blood pressure, blood counts, hematocrit reading, and stool should be followed. X-ray examination is usually deferred from 10 to 14 days after the bleeding ceases. Earlier x-ray examination may be carried out at the discretion of the physician. No gastroscopy is indicated. Surgery is indicated when the bleeding refuses to be controlled medically, and the patient is sinking.

In pyloric obstruction, hospitalization is necessary. Nothing my mouth is to be given for 24 - 48 hours. Gastric suction is to be continuous after the use of a large lavage tube to empty the stomach. Intravenous fluids containing vitamins B and C, atropine sulfate grains 1/150 with sodium phenobarbital grains ½ every six hours, aluminum hydroxide grams two every two hours during the day, and if awake at night are administered. A liquid diet follows after 48 - 72 hours. Suction is applied during the night. X-ray with follow-up studies should be performed in 7 - 10 days. Surgery is indicated if retention is not significantly reduced by 7 - 10 days.

PSYCHOTHERAPY

A most important aspect in the management of peptic ulcer is psychotherapy. The benefits yielded from a friendly, understanding, yet scientific approach, by the physician are immeasurable. In our highly competitive world today, the prevalence of tension, sorrow, and unhappiness as a cause of disease cannot be overlooked. The individual's brain, as well as his stomach, must be treated. In many a case, the correction of an existing disharmony between the mind, spirit, and body will lead to immediate noticeable improvement in one's digestive processes. A successful medical regimen does not end when the proper diet and medications are prescribed. Re-educating the patient concerning the tension traumas of life is the direct responsibility of the physician. To teach the patient how to release himself from the social stresses producing mental trauma, and to instill a courage to carry on are undoubted aids in proper ulcer management.

SURGERY

A simplified scheme of indications for surgery in peptic ulcer is:

1) *Perforation*—immediate simple closure.
2) *Massive hemorrhage*, recurrent, quiescent phase—resection with or without vagotomy.
3) *Pyloric obstruction*—after medical therapy failure:
    a) In old age group with low acid-gastroenterostomy, with or without vagotomy.
    b) In younger age group with high gastric acidity—resection with or without vagotomy.
4) *Gastric ulcer*—resection for failing to respond to medical therapy or those suspected of being malignant.
5) *Marginal ulcer*—vagotomy if no obstruction. Resection with or without vagotomy.
6) *Intractable duodenal ulcer*—resection, with or without vagotomy.

SUMMARY

A discussion of certain diagnostic and therapeutic problems of peptic ulcer is presented. Special emphasis is placed upon the pain syndromes of peptic ulcer as related to differential diagnosis of abdominal pain. A rather detailed discussion of the complications of penetration and perforation is included. Current medical management of the various type ulcers is specifically outlined. A brief summary of surgical procedures usually recommended in peptic ulcer is mentioned.

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Our Audit Program Works*

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When we say that a program works, we must have firmly in mind what the system is and what it is expected to do. In the instance before us today, we are concerned with the public relations value of a working audit system and, in a sense, public relations and an audit system are inseparable.

Public relations must be considered and actually is an attitude. There is one attitude in every hospital and it is reflected by the employees, the management, the medical staff and the auxiliary. This attitude is rapidly communicated to the new patient as well as to the entire community and it is this attitude which constitutes our most important public relations asset. Therefore, when we say that our audit system works, we are, in fact, saying that the doctors of our community have accepted a leading role and assumed the responsibility, which can only be theirs, of proving to the employees, management, auxiliary, and public that the best possible medical care is guaranteed to the patient. These people cannot be fooled. They are satisfied in their own minds whether this situation actually exists or is merely said to exist. If they are convinced it exists, their good opinions come back to you many times from their friends, neighbors and acquaintances. This person-to-person communication is our most important field of public relations.

When our doctors first met to draw up the by-laws, rules and regulations of our hospital, it was evident that the mass of work involved did not appeal to anyone. There was no more than the usual incentive every doctor has to be a part of something better than we have had before. There may have been a feeling that whatever was drawn, it would be loosely enforced and this might well have been the case. Patients in our area have long been able to keep their own medical counsel, being, as they are, in close proximity to a leading medical center. Referral of patients for consultation locally was about as low as it could be, thus contributing to an increase in cost to patients since they did have to leave town for consultations. Such a condition over a period of time could only result in lowering public confidence in the profession.

Under our new by-laws, it was evident from the beginning that consultations were the one means of keeping the audit committee satisfied. Many meetings were devoted to drawing rules covering required consultations. Female surgery without consultation was eliminated. Writing consultations whether required or not has become almost routine. An early high Caesarean section rate was fully audited and, though shown to be justified, served full notice that the staff would live by its by-laws. The pathologist was called into conference with the tissue committee and invited to give strict interpretations of all tissues submitted to him.

By now, it had become obvious that our doctors were responding to the incentive offered by a system of which they were a part and that they approved a searching scrutiny of their work by their colleagues. If there were any who did not fully approve, they would have found it necessary to comply because of the pressure characteristics of the audit system. We felt justified, therefore, in releasing some public information to the press on our system.

It had been rumored for some time that a patient could hardly be mistreated in the new hospital, but following the first major feature written in our local paper, the profession as well as the hospital gained not only a wealth of favorable comment, but the hospital obviously assumed a place and a stature in the eyes of the community.

Public relations and publicity are not the same, though good publicity adds a great deal to the public's opinion of the hospital, thus enhancing the public relations. Feature articles in the press and over the radio are extremely important in crystallizing public opinion, but no matter what is doled out to the reporters, it is practically valueless unless it is borne out by the actions of all those concerned in the operation of the hospital.

In its simplest sense, public relations is nothing more than the enthusiastic devotion to duty of all those concerned in the operation of the hospital, coupled with a sense of something worthwhile being accomplished and a feeling of oneness or *esprit de corps* between all those people actively working together. This feeling of *esprit de corps* can be generated by the medical staff as by no other group in the institution. The effect of a firm medical staff government on the nursing and maintenance personnel is of the utmost importance and of incalculable benefit. The institution is the place where the doctors work. If they are slip-shod in managing themselves, it will inevitably be reflected by less than the best possible in patient care and, therefore, in poor public relations.

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There are many opportunities for good public relations growing out of staff government. The crux of good staff government is the audit system. The active audit of the records, the review of patients in the hospital, analysis of tissue reports, operative indices, morbidity, mortality, etc., are of no value unless everyone realizes that a strict accounting of derelictions will be had. There is considerable overlapping in the work of the various committees and service reports necessary to proper functioning of the audit system. This double check almost completely eliminates the chance of internal politics, which is of prime importance.

Following the publication of our first feature on staff government, it soon became obvious to the officers of the staff that at least the vast majority of the doctors favored interpretation of the by-laws, rules and regulations in the strictest sense. A new feature dealing entirely with the audit system was prepared by a reporter invited for the purpose. This article aroused a flood of favorable comment, not only at home, but throughout the state. It is primarily because of this article that this paper is being presented here today. Though it might appear that the development of our public relations program was planned, this is not the case. We have tried to develop a good public relations program, but what we have done has been a natural outgrowth of the audit program.

We should never forget our controlling body. The success or failure of any hospital depends on its medical staff, but a good sound policy in staff government can quickly elicit the solid support of the trustees. These people are forgotten all too often but they never forget us. Good liaison pays untold dividends.

There are many other groups intimately concerned with the functioning of the hospital though not primarily a part of it. These include among others, our volunteer health agencies, official health agencies, newspaper and radio personnel, ministers and church groups, and civic clubs. Representatives of these groups can find the pulse of the hospital very quickly and are atune to the attitude of the operating personnel. The hospital auxiliary will feel the effects of medical policy in morale of the hospital. If the auxiliary does not pick it up, you may be sure there is little to pick up.

It is not enough to give good medical care—the patient must be told he is getting it and the fact proved. For example, there will seldom, if ever, be a complaint from a patient for the charge of a routine admission x-ray if he is given a small folder outlining the reasons for the procedure. Small brochures on the purpose and scope of the hospital given to the patient are well worthwhile.

At the time of this writing and growing out of our staff government, we have evolved a community blood bank, polio center, doctor locator service, emergency call system and grievance committee. In addition, we have begun a memorial medical library. The opportunities offered for publicity and enhanced public opinion are evident. Our doctors are taking the problem of individual public relations back to their offices, to their civic clubs and to their routine lives as citizens of the community. The far-reaching effects of the audit system pay ever-increasing dividends.

Our hospital is a 100-bed Hill-Burton. It is not the only hospital in the community. At this writing, it has been open and receiving patients only 11 months. It would seem impossible that so much could be accomplished in such a short period, yet it has. While comparable hospitals in the mid-South have run about 30 per cent occupancy during the first year, ours has run at nearly 38 per cent so far and on the present basis it will be higher when the year has ended. We feel this margin of occupancy is due in its entirety to our public relations program, and that it cannot fail to increase as time goes on. We know we are on the right track. We know we have what the public wants and is entitled to receive—the best medical care possible. We know the public is learning this fact and growing to appreciate it. We know that we have worked long and hard over our program of staff government. We know we are better doctors because of it and we know the patient is the sole beneficiary.

When our chief of staff was elected, in his acceptance, he stated that his policy would always be "equal rights to all—special privileges to none." He has repeated it on every possible occasion.

In our hospital, it has come to mean good medical care, the best available, to everyone. We have come far but the limit is not in sight.

In summary, the public relations values of an audit system may be divided into three parts—one of which we can assign to the public; one to the physicians of the staff, and one to the hospital itself.

To the public, the audit system

1) builds confidence and trust in the doctors and the hospital, and

2) assures the patient of treatment which is completely competent on the highest ethical plane.

To the hospital, the audit system

1) assures competent and complete medical records;

2) finds and points the way to correction of administrative deficiencies;

3) materially advances the hospital's efforts toward accreditation;

4) fosters close liaison and promotes understanding between the medical staff and the trustees.

To the physician, the audit system

1) is the best argument and the best reason for exclusion of external control of the practice of medicine;

2) means that privileges are assigned solely on the basis of professional ability and ethical practices;

3) promotes competent practice from two standpoints—

   a) incentive,

   b) pressure;

4) eliminates, insofar as possible, both internal and external politics on the staff and, coupled with a capable and conscientious chief of staff, assures impartiality and fairness to all members.

Pneumonectomy for Progressive Pulmonary Tuberculosis*

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THERE ARE several criteria for resection in pulmonary tuberculosis which have now been fairly well established. First of all, the disease would be so localized that all grossly evident fossi could be eradicated and completely circumscribed by the resection. The disease would have shown maximum regression and be stabilized rather than progressing. The general condition of the patient would be good—the patient should be gaining weight, afebrile, and have minimal cough and sputum. It is preferable that the sputa be negative for acid fast bacilli though this is not essential. It is almost mandatory, however, if the sputa be positive that the organisms be susceptible to the antibacterial drugs. This implies among other things a properly handled antibiotic regimen, which is by present-day standards at least two of the currently popular three tuberculosis drugs, (streptomycin, PAS and isoniazid) for a minimal period of six months and preferably for not longer than a year or fifteen months before coming to surgery. In addition by bronchoscopic examination there should be no evidence of active endobronchial tuberculous disease.

Obviously many patients are not going to be able to meet all these criteria. However, the fewer of these criteria that are met, the poorer the results are going to be. Occasionally there arise instances of salvage cases—of desperate risk cases—in which it becomes evident that the patient's condition is rapidly deteriorating and will continue to do so unless some surgical intercession be made even though the risks are high. The following case is such a salvage case; a pneumonectomy done for rapidly progressive pulmonary tuberculosis in which all medical measures were failing.

CASE REPORTS

Mrs. J. B. B., 27-year-old housewife, was admitted to Mississippi State Sanatorium on June 29, 1949. For nine months previous to admission she had noted fever, increased fatigability and left pleuritic pain. An x-ray in March of 1949 suggested pulmonary tuberculosis which was proved by positive sputa. A pneumoperitoneum was started in April of 1949 and she received ½ gram of streptomycin twice a day for 97 days with some systemic improvement. Her past history revealed that she had had several episodes of pyelonephritis, an appendectomy in 1941 and a thyroidectomy for toxic goiter in 1944. Physical examination revealed the patient to be slender but moderately well nourished. There was a thyroidectomy scar and a laparotomy scar and pneumoperitoneum. The remainder of the physical was not particularly remarkable. The laboratory data showed a red blood count of 3.5 million with a hemoglobin of 68%, white count 7,000 with one basophil, 8 eosinophils, 58 neutrophils, 29 lymphocytes and 4 monocytes. The chest x-ray revealed mottled infiltration over the upper third of the left lung. The pneumoperitoneum was continued and the patient was placed at bedrest with gradual increase of activity over the subsequent months. The left phrenic nerve was crushed July 9, 1949 and again October 19, 1950. In September of 1950 there was x-ray and clinical evidence of increase of her disease and she returned to bedrest with steady improvement and negative sputa thence forward until discharge in July of 1951. Her chest x-ray at this time had cleared except for two dense shadows on the left thought to be inspissated cavities, a 3 cm. nodule in the first interspace and a 2 cm. one in the second interspace. The patient continued pneumoperitoneum on the outside but as the nodular lesion in the left apex remained readmission was advised.

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She was readmitted May 11, 1952, with a positive sputum, 3.9 million red count, 80% hemoglobin, white count 10,000 with 55 neutrophils, 41 lymphocytes and 4 monocytes. She was placed on bedrest and Isoniazid alone—50 milligrams three times a day—from May of 1952 until November of 1952; a period of approximately 6 months. At this time streptomycin, one gram twice a week and paraminosalicylic acid, 12 grams daily were added and have been maintained since, being discontinued only for brief periods due to nausea. Early she showed a good response, gaining some 25 pounds, coughing less and raising less sputum. A bronchoscopy October 21, 1952, showed no evidence of endobronchial disease. In March of 1953 it was noted that the patient was becoming toxic with a low-grade fever and her chest x-ray showed excavation of the inspissated cavity in the left first interspace. The isoniazid was switched to iproniazid (Marsilid). This had to be discontinued in less than a month due to the patient's developing extreme irritability and dependent edema and becoming disoriented. Isoniazid was restarted. In June of 1953, an x-ray showed partial left lower lobe atelectasis and increased infiltration. Her cough became worse with the sputum increasing to over one ounce daily and she noted hemoptyses frequently during the subsequent two months. Bronchoscopy on June 26, 1953, revealed erythema of the left upper and left lower lobe orifices in evidence of active endobronchial disease. The patient's appetite became poor and she lost three pounds of weight in the month prior to operation. On August 10, 1953, a left pneumonectomy and plombage thoracoplasty were performed. The first nine ribs were stripped of their periosteum and an Ivalon plastic sponge was inserted into the subcostal extraperiosteal space. One thoracotomy tube was left in the pleural space to drain into a water seal bottle but the subcostal space was not drained. The postoperative period was complicated early by a persistent fever of 102 to 103 degrees Fahrenheit, which gradually subsided over the subsequent four weeks. The subcostal space required aspiration on four occasions during the first two and one-half weeks but none subsequently. Four weeks postoperatively the patient had a mild depressive reaction which gradually responded to therapy. The sputa postoperatively became negative for the first time since this admission. Postoperative x-rays showed the mediastinum in the midline and no change in the appearance of the right lung.

Pathology examination found the lung to be almost completely solid to palpation. In the apex of the upper lobe was a 2.5 centimeter cavity. There were firm nodular areas filled with chalky caseous substance measuring up to 8 millimeters scattered throughout the upper and lower lobes, being most numerous in the lingula. In the upper portion of the lower lobe along the interlobar fissure the confluent nodules formed a mass 4 centimeters in diameter and the remainder of the lower lobe was firm and rubbery throughout. Microscopic examination revealed fibrocaseous tuberculosis throughout with a small granulomatous area at the line of transection of the left main stem bronchus.

COMMENTS

The decision to operate at all on such a case was not made easily. There were many factors which were extremely adverse. First of all, there was the evidence of recent and progressive spread by x-ray. The sputum was remaining positive in spite of long-term antibiotic therapy of all known antituberculous agents. In view of the long periods in which streptomycin and isoniazid had been given singly it is almost certain that the tubercle bacilli were completely resistant to these drugs. This assumption is further supported by the active progression of the disease while on all these drugs. Such an occurrence is almost 100 per cent proof of resistant organisms. In addition, the general condition of the patient was beginning to deteriorate with diminishing appetite, loss of weight and a febrile course. There was in addition, active endobronchial disease which while not visible in the left main stem bronchus itself, was present close to the site at which the bronchus would be transected. And the development of active endobronchial disease in the eight months which all antibiotics had been given was a bad prognostic sign. On the positive side the right lung during all this period had remained completely uninvolved, at least grossly, so it appeared that the disease could be circumscribed by resection. It was of course evident from the extent of the disease that nothing short of a pneumonectomy would suffice. In addition there was the apparently definite fact that this case was completely hopeless on the best possible medical regimen that could be devised. This last fact was of course the deciding factor.

A review of the literature for the experience of others with such cases reveals that in general most clinics accept these patients for surgery[1, 2, 3, 4, 5] but only with the full realization that these are salvage cases and the mortality rate in large series would run around 40 per cent[1,2]. Our own experience had been limited to one other case of progressive toxic disease from a totally destroyed lung. After pneumonectomy this patient did extremely well, was discharged six months postoperatively and now nine months later remains in excellent health.

The thoracoplasty was performed to stabilize the mediastinum in the midline to prevent overdistention of the remaining lung, which appears to be a deleterious factor in increasing the incidence of recurrent disease [1,6,7]. The second purpose of thoracoplasty was to completely obliterate the pleural space. The incidence of bronchopleural fistulas after pnemonectomies for tuberculosis is high-ranging as high as 25 percent in some reports and is higher when there is evidence of active endobronchial disease[8,9,10]. Complications secondary to a bronchopleural fistula are due mainly to aspiration of pleural fluid, often leading to spreads of the disease and frequently death. An extensive thoracoplasty will completely obliterate this space so that if the bronchial stump does open there is no space filled with fluid for aspiration. In addition placing a thick layer of muscle and periosteum against the mediastinum and the region of the bronchial stump will further add to the blood supply, aiding in its healing. As a further aid in obliterating the pleural space we routinely excise a segment of the phrenic nerve at the time of pneumonectomy in order to allow the diaphragm to rise.

Performing the pneumonectomy and the thoracoplasty at the same time, as first proposed by Iverson and Skinner about four years ago[11], has certain advantages. In the first place it is a single operation instead of two or more, which as has been demonstrated by several authors[12,13,14] does not significantly increase the operative risk. The obliteration of the pleural space by a thoracoplasty at the time of the pneumonectomy, we feel, is quite valuable because otherwise a bronchopleural fistula may develop before the patient is ready for the second operation. Performance of a simultaneous pneumonectomy and thoracoplasty leaves a more or less flail chest so that these patients require oxygen and endotracheal aspirations for a longer period than usual. However, a plombage thoracoplasty prevents any paroxysmal motion and gives a completely stable chest so that respiration and cough are easy. These patients have no more postoperative difficulties than those on whom the thoracoplasty has not been performed. There is of course the very obvious advantage of preventing the usual thoracoplasty deformity. Woods[15] first reported the use of some foreign material in the subcostal extraperiosteal position after the performance of a thoracoplasty. The periosteum is stripped from the ribs as in a routine thoracoplasty and then the plombage material is placed beneath the ribs against the intercostal muscles and periosteum which have been allowed to drop down against the mediastinum. While Woods first used such a procedure for routine thoracoplasties without resection it has been extended for use in post-resection thoracoplasties. Placing the plombage material intrapleurally at the time of resection appears to increase the incidence of infection[16]. However, placing the material extraperiosteally does not and Woods[17] was able to report only a 1 per cent incidence of infection in over 300 plombage thoracoplasties. If infection does ensue it is extra pleural rather than intrapleural where the complication of opening the bronchial stump might occur. While Woods and others have used the lucite spheres we have preferred to use the Ivalon sponge which is a polyvinyl alcohol plastic introduced by Grinslay and Waugh[18]. It has the advantages of remaining somewhat elastic permanently, of being one large mass that cannot migrate and of allowing fibrous tissue to grow through the meshes of the sponge.

SUMMARY

Surgery on a case of progressive, medically incurable tuberculosis localized to the left lung is reported. In the presence of presumably drug-resistant tubercle bacilli, a pneumonectomy and nine-rib plombage thoracoplasty were performed simultaneously with a favorable early postoperative course and plombage thoracoplasty were performed simultaneously with a favorable early postoperative course and conversion of the sputum. While a two-month follow-up is completely inadequate for evaluation of a final result, we do feel that by such a procedure a completely hopeless situation has been converted into one with a favorable prognosis.

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Volvulus of the Stomach: A Case Report

THOMAS G. BARNES, M.D.
Greenville, Mississippi

Volvulus of the sigmoid is not too uncommon. Volvulus of the cecum is a much rarer finding but volvulus of the stomach is an almost unheard-of condition. Less than 200 cases have been reported in the world literature and most of these have appeared in foreign journals. We have recently been confronted with a patient upon which the diagnosis of a partial volvulus of the stomach was made preoperatively. It was felt that due to the rarity of such a lesion that a report of this case was noteworthy.

CLASSIFICATION AND ETIOLOGY

There are two recognized types of volvuli 1) Volvulus mesenterio-axialis, and 2) Volvulus organo-axialis. Either or both of these types may be partial or complete. The more commonly seen is the complete mesenterio-axialis type. The case herewith reported is a partial organo-axialis type.

In the mesenterio-axialis type the rotation occurs from right to left around a vertical axis at right angles to the cardio-pyloric line. Most of the movement occurs in the pyloric end of the stomach which passes to the left and upward anterior to the fundus. This produces a sharp kink in the anterior wall and a deep sulcus in the lesser curvature separating the cardiac and pyloric ends of the stomach. Because of this profound rotation the posterior wall of the stomach, viewed through the greater omentum, is seen first when the abdomen is opened. As a result of this the cardia and pylorus are occluded and a closed loop type of obstruction is produced.

In the organo-axialis type the axis of rotation is the line joining the cardiac and pyloric openings. The stomach may rotate through an axis of 180 degrees or more. The rotation is usually from right to left but may occur in the opposite direction as in this case.

Ptosis of the stomach with relaxation and elongation of the gastro-hepatic and gastro-colic ligaments is the usual predisposing cause of gastric volvulus. In consideration of the predisposing factors of partial volvulus one must mention the hourglass stomach, gastric ulcer, and perigastritis. The most important of the exciting causes are acute gastric dilatation, vomiting, vigorous peristalsis rapidly followed by an anti-peristaltic wave, and overfilling of the stomach.

SYMPTOMS AND DIAGNOSIS

In total volvulus there are usually no premonitory symptoms. The onset is characteristically sudden and the symptoms are progressive and will ultimately lead to death unless the condition is corrected. The earliest manifestations are severe excruciating epigastric pain and vomiting. Pain radiating trans-abdominally and into the high lumbar spine is seen. It is important to note that the vomitus will always only contain gastric contents and finally as the cardia is occluded retching alone will be noted. The inability to swallow fluids is seen and if any is ingested at all, it is rapidly returned in its pre-ingested state. As one might expect, marked, progressive, well localized, epigastric distention is soon seen. The percussion note is tympanitic. A very characteristic finding is the inability to pass a gastric tube for the relief of the distention. This is, of course, also due to cardiac obstruction. The patient rapidly passes into a typical shock-like state and therapy along these lines becomes imperative. In the typical acute total volvulus of the stomach a classical triad of symptoms is seen, 1) vomiting once or twice, ceasing and being replaced by uncontrollable retching without relief, 2) rapid increasing distention in the epigastric and hypochondriac areas, the iliac fossae remaining completely flat, and 3) the inability to pass a stomach tube.

In partial volvulus practically every case has a history of old long standing digestive disturbances. There may be a history of several crises of severe epigastric pain lasting for a few hours and then disappearing spontaneously. The onset is usually sudden with severe epigastric pain and vomiting of gastric contents. A gastric tube may be passed but usually with no relief of pain when the fluid is withdrawn. The partial volvulus is typically characterized by recurrences and exacerbations. It is in this category that the roentgenologist is most helpful and frequently the diagnosis is made by him preoperatively as was done in this case by Dr. Robert H. Peeples. The condition must always be differentiated from the following: Perforated hollow viscus, acute intestinal obstruction, acute pancreatitis and mesenteric thrombosis.

TREATMENT

The treatment of this condition must of necessity be considered under two headings depending upon the type of volvulus encountered. If one is confronted with the total volvulus the patient is usually quite shocked, dehydrated, and is considered a poor operative risk. One must defer the operative procedure for a period of time until blood, plasma, and fluids, as indicated, are given to the patient to restore his fluid and electrolyte balance and bring him into the best possible condition to withstand the surgery. The anesthetic of choice is intratracheal, gas, oxygen and ether. The intratracheal tube is the safest means for the prevention of regurgitation and aspiration of gastric contents following the release of the volvulus. The abdomen is preferably opened through a high left mid-rectus incision. Immediately the posterior wall of the stomach is encountered covered with greater omentum. The distention is usually so marked that of necessity a trocar aspiration for decompression must be employed using all precautions for asepsis to minimize spilling of the gastric juices into the peritoneal cavity. This opening is closed with a purse string suture placed into the stomach wall prior to the introduction of the trocar. Following this maneuver the volvulus usually can be easily reduced. At this point the patient's general condition must again be carefully evaluated and if he appears to be progressing satisfactorily a gastropexy of one of the usual various types, namely: Duret, Beyea, Rovsing or the Coffey Hammock procedure, should be resorted to. If the condition of the patient is poor then gastropexy must be postponed until a later date and the abdomen promptly closed.

If one is confronted with a partial volvulus the need of such an immediate operation is not as grave and one may postpone the procedure until a careful diagnostic study and evaluation of the patient has been completed. When the abdomen is opened under intratracheal anesthesia one may or may not see the volvulus because of its intermittent occurrence and disappearance. However, it can easily be reproduced due to ptosis of the stomach and relaxation and elongation of the gastro-hepatic and gastro-colic ligaments. A gastropexy of one of the above-mentioned types should be carried out. Post-operatively in both groups Wangensteen suction by means of a levine tube into the stomach should be sustained about three days. The patient's fluid and electrolyte requirements should be met intravenously. Beginning on the fourth post-operative day small sips of water are given by mouth and this is gradually increased daily until eventually the patient is on a full solid diet. The other post-operative instructions are left and each case is treated as its individual needs arise.

CASE REPORT

M. M. Y., (45-year-old colored female, G. B. A. 156027). This forty-five-year-old colored female was admitted to the hospital with the chief complaint of "heaving spells" of thirty-six hours' duration. She was first seen on October 9, 1952. Patient stated that on October 7, 1952, she was suddenly seized with a cramp-like pain in the umbilical and epigastric regions which was rapidly followed by nausea and vomiting. The vomitus was bile stained. She stated that she vomited everything that she had ingested for two days and this was returned in the pre-ingested state immediately after it was swallowed. The pain was most severe and caused her to toss and tumble on the floor. She stated that she became so weak that she could not stand alone. Her history is interesting in that she stated that since 1945 she had had recurrent attacks of pain and flatulence and had been treated for a peptic ulcer. Her personal past history was essentially non-contributory. She stated that she had been treated for bronchial asthma but for no other illnesses except the epigastric disturbances which she had complained of. Her family history was non-contributory. Menstrual periods were totally irregular. She had had three miscarriages, no full-term babies. She was operated on in 1942 for a tumor of the ovary which was probably an ovarian cyst. The examination on admission revealed the blood pressure to be 126/84. The nose, mouth, and throat were essentially negative. The heart was not enlarged, it was regular in rate, rhythm and force. No murmurs were detected. The breasts revealed no masses or areas of tenderness and no secretions from the nipples were obtained. The lungs were clear to percussion and auscultation. The diaphragms descended well on both sides. No rales were detected. Examination of the abdomen revealed some epigastric tenderness without spasm. There was a mild amount of epigastric distention which on percussion revealed a tympanitic note. There was a well-healed low midline scar. No masses or herniae were detected. The vaginal and rectal examinations were non-contributory and examination of the extremities was negative. The diagnosis following the physical examination was duodenal ulcer with possible pyloric obstruction.

Patient was admitted to the hospital and examination of the upper gastro-intestinal tract showed the esophagus to be normal. There was an abnormality of the stomach in which the greater curvature appeared to be rotated from left to right with marked torsion of the middle third of the stomach and resulting in an actual volvulus of the stomach. This finding was most pronounced after the first two or three swallows of barium and was difficult to show after the full six ounces of barium had been administered. The stomach and duodenum were negative for evidence of ulcer or other filling defect. The x-ray opinion was that there was evidence of volvulus of the stomach without any evidence of organic lesion within the esophagus, stomach or duodenum. A complete blood count was performed upon the patient. She was found to have a hemoglobin of 11.3 grams, Erythrocytes 3,750,000, Leukocytes 5,250, Lymphocytes 33%, Neutrophiles 59%, Monocytes 1%. Platelet count was 402,500, prothrombin time 18 seconds, coagulation time 5 minutes. Urinalysis was essentially negative. Her blood sugar was 117. The patient was prepared for surgery and on October 14, 1952, through an upper left rectus incision the peritoneal cavity was explored. No volvulus was detected as soon as the peritoneal cavity was opened. However, it could easily be reproduced due to redundancy and relaxation of the gastro-hepatic and gastro-colic ligaments. A modified Beyea gastropexy was effected. This was accomplished by interrupted 000 black silk sutures placed in the gastro-hepatic omentum so as to imbricate it and shorten the ligament. This suture was then tacked to the anterior parietal peritoneum in innumerable points. Following this the gastro-colic omentum was treated similarly and it was tacked to the anterior parietal peritoneum. This procedure was carried around the entire lesser and greater curvatures of the stomach. After the sutures had been placed and tied, attempts to reproduce the volvulus were unsuccessful. The abdomen was then closed. The patient was treated post-operatively with a levine tube with Wangensteen suction for three days. Along with this her electrolytes and fluid balance were kept at a normal level using intravenous glucose and saline supplemented with one of the multi-vitamin preparations.

Her post-operative course was uneventful. The tube was removed on the fourth post-operative day and she was started on liquids which were gradually increased to a solid diet over a period of approximately eight days. She was discharged from the hospital on the tenth post-operative day and has been seen on several occasions since then. Her last visit was on October 10, 1953, at which time she said that she had had absolutely no abdominal pain. She is able to eat anything that she desires without any gastric disturbances whatsoever. All of her previous symptoms of cramp-like abdominal pain, particularly in the epigastric region completely disappeared. Nausea, vomiting and flatulence have disappeared and she has had no difficulty whatsoever from these since the operation. Her only visit to a physician has been for treatment of her bronchial asthma.

SUMMARY

A discussion of volvulus of the stomach is presented with a consideration of the types, signs, symptoms, diagnosis and operative treatment.

A case history is presented of a patient upon whom the diagnosis was made preoperatively by x-ray and then treated satisfactorily by a modified Beyea procedure.

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The greatest truths are the simplest—Hosea Ballou

Talent without tact is only half talent—Horace Greeley

No man is more cheated than the selfish man—Henry Ward Beecher

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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EDITORIALS

DR. McCALL ELEVATED TO PRESIDENCY
DR. S. LAMAR BAILEY PRESIDENT-ELECT

The Mississippi State Medical Association held its annual session in Jackson at the Heidelberg Hotel, May 11-13. The registration was slightly above five hundred which we believe is the highest the association has had. The scientific program was unusually good, the entertainment and general sessions up to standard.

The various committee of the association took their assignments seriously and did a good job. The business of the association is on the increase. The work they did is good evidence of healthy growth in the association.

President M. Q. Ewing gave a very definite account of his stewardship as president and named many doctors who have cooperated during his tenure both as president and president-elect. He made a special effort to establish a system of training nurses in our state that would be outstanding for the state and even render service beyond its borders. This effort we think will bear fruit.

Dr. James Grant Thompson delivered the oration, choosing for eulogy the late Dr. J. W. Barksdale who was well known and greatly beloved. Dr. Thompson's address followed his own original pattern—quite fitting and full of interest about a great surgeon and a personable man.

A representative from the American Medical Association delivered an informative address on the progress and workings of our national organization. The affiliation between the A.M.A. and our state associations is becoming more closely knit and better understood. In addition to the advancement of scientific medicine, we are growing more adept with medical ethics and medical legislation.

Well received outstanding men out of the state on the scientific program, included Drs. Alton Oschner of New Orleans, James F. Crenshaw of Birmingham, and Lyle Motley of Memphis.

Many doctors regretted that the Woman's Auxiliary did not have the Doctor's Day luncheon as had been the custom for some time. It seemed that time does not permit this in a three-day meeting.

Dr. Cummings McCall of Gulfport is now the full-fledged president of the association. He has served well as president-elect the past year. He will do a good job this year. He is willing to work. Deeply interested in the affairs of the association and possessing high medical ideals, we are sure that he brings honor to this position.

Dr. Lamar Bailey of Kosciusko was chosen president-elect. Last year his fine and attractive wife served as president of the Woman's Auxiliary. Dr. Bailey is genial, sincere and courteous, and willing at all times to do his full duty for organized medicine.

Expressions of appreciation were manifest during the session to Mr. Rowland Kennedy for his fine work as executive secretary.

Our delegates to the American Medical Association, Drs. J. P. Culpepper and J. W. Lucas, gave a good account of their stewardship during the year. They are serving us well.

Mr. C. P. Loranz, executive secretary of the Southern Medical Association, was a welcomed guest.

The next meeting goes to the Gulf Coast, to the Buena Vista Hotel.

HOSPITALS

The Hospital Number of the *Journal of the AMA* is out. This annual edition is most valuable to both physicians and hospitals.

The hospital has become the chief vehicle through which medical service is rendered, although it takes combined services of nurse, research laboratory, biological house, pharmacist and dentist to complete the job of giving modern medicine to the patient.

People are rapidly becoming insurance-minded as well as hospital-minded. The American Medical Association has now registered 6,840 hospitals, 2,136 of which are classed as government, and 4,704 as non-government. These hospitals admitted 19,869,061 in 1953 as compared with 18,914,847 in the previous year. Gains were more pronounced in the non-governmental hospitals which admitted 74 per cent, while the federal, state, county, etc., admitted 26 per cent. The general hospitals had an increase of 932,755 last year, or 94 per cent of all patients admitted. They also had 97.6 per cent of all hospital births. The average bed occupancy last year was 84.7, with general hospitals averaging 73 per cent. In the general hospital group the average stay per patient was 9.3 days. In the federal hospitals the average, 23.6 days. Eight hundred and fifty hospitals are approved for internships.

Blue Cross is the most popular hospital insurance, now reaching one-third our population. But for continued success for hospitals, doctors and the patient there must be a sympathetic cooperation. Costs threaten the whole set-up. The people must be content with the benefits they pay for, the hospitals must carry as much of the burden as they can, and the medical profession must return to the family doctor ideal for guidance. Medical care can easily become so high that insurance rates will go beyond the ability to pay of the average man.

FOR MORE NURSES

It is believed that Mississippi will soon have a fine system for training nurses, the three-year, R.N. She is the nurse for the average hospital and the one perferred by private patients. Many of our very finest nurses have been trained in small hospitals. We of course need a number of nurses who are college graduates and who have been especially trained for administrative work. The practical nurse is serving well in many places.

The *Rotarian* recently published some interesting facts under the heading, "The World Needs Nurses." Some observations in this article include: "There is only one professionally trained nurse to a 100,000 people in French West Africa; in Indonesia one to 50,000; in the United States one to every 300; in Great Britain one to 250. The Netherlands has one trained public health nurse to every 2000 population, which is counted ideal. Britain has only one trained public health nurse to 5,300, and in the United States, one to 6000." The World Health Organization is helping to solve the nurse problem, especially the public health nurse it seems.

Mississippi can help in a fine way to solve the nursing problem. Even with one professionally trained nurse to every three hundred people, many of our hospitals have had trouble getting a supply of nurses. With our four year medical school and the central hospital with its affiliated system, we can train public health nurses and the R.N. and do a good job of it. Our medical school can be outstanding in training general practitioners and public health officers also.

News and Comment

MISS WILLIAMS RANKING LIBRARIAN

Miss Louise Williams, Medical Librarian, Mississippi State Board of Health, has served as chairman of the Subcommittee on Certification of the Medical Library Association for 1953-54. During the 5-year period since the Code for the Training and Certification of Medical Librarians was adopted, a total of 374 have been granted certification, of which number four qualified from Mississippi. In addition to the United States, Canada, Hawaii, Chile, and Argentina are represented.

The primary purpose of certification by the Medical Library Association is to insure that its applicants have attained a reasonable degree of professional competence, either through experience or training. Charter Certification (which closed April 13, 1954) required a minimum of five years of medical library experience at the professional level.

Miss Williams will make a report of the year's work on certification at the annual meeting of the Medical Library Association in Washington, D. C., June 15-18. She will also attend a special meeting of the Committee on Standards for Medical Librarianship, of which she is a member.

Physicians in Mississippi have known for many years that the professional competence of its Mississippi State Board of Health librarian is tops. Her recognition is shared with pride by the medical profession of our state.

VICKSBURG SURGEON HONORED

A Vicksburg surgeon will be one of ten in the United States to be honored by the American Cancer Society this year for outstanding work in the fight against cancer. Dr. Williard H. Parsons, chief surgeon of the Lutheran Hospital, will be presented with a gold medal for his support of the theme, "Every doctor's office a cancer detection center." He has served well as chairman of the state cancer chapter's committee on education, and a member of the national committee.

McDANIEL HEADS STATE SOCIETY

At the annual meeting of the Arkansas State Medical Society at Fort Smith, Dr. Lowry H. McDaniel, Tyronza, was elected president-elect.

Dr. McDaniel is now a member of the council of the Southern Medical Association, representing Arkansas. He was chairman of the Section on General Practice in 1948, and is now vice-chairman of the Section on General Practice of the American Medical Association. He has been president of and active in the Arkansas Chapter of the American Academy of General Practice. He has also been active in the American Academy of General Practice, being an alternate delegate at the recent annual meeting in Cleveland.

AMERICAN HEART ASSOCIATION SPONSORS "QUESTION-AND-ANSWER" AT AMA

The American Heart Association will be represented by a special program at the 103rd Annual Meeting of the American Medical Association, to be held at the Civic Auditorium in San Francisco from June 21-25. The program will consist of a four-day "Question-and-Answer" Conference on various aspects of cardiovascular disease similar to the series conducted by the Association at the AMA Annual Meeting in Chicago in June, 1952.

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NEW ORLEANS GRADUATE ASSEMBLY

The eighteenth annual meeting of the New Orleans Graduate Medical Assembly will be held March 7 - 10, 1955, headquarters at the Municipal Auditorium.

The following officers and members of the Executive Committee have been elected for this year:

Dr. Woodard D. Beacham, President
Dr. Donovan C. Browne, President-elect
Dr. Charles L. Brown, First Vice-President
Dr. James D. Rives, Second Vice-President
Dr. Willoughby E. Kittredge, Third Vice-President
Dr. Maurice E. St. Martin, Secretary
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Dr. Richard W. Vincent, Assistant Director of Program

Executive Committee: Dr. Andrew V. Friedrichs (retiring president), Dr. Cuthbert J. Brown, Dr. Barrett Kennedy, Dr. Ambrose H. Storck, and Dr. Charles R. Walters.

ANNUAL MEETING OF FIFTY-YEAR CLUB

Dr. J. K. Avent, Grenada, was host at a luncheon for the Fifty-Year Club, Mississippi State Medical Association, at twelve o'clock noon, Tuesday, May 11, 1954, on the Roof Garden of the Robert E. Lee Hotel, Jackson.

The following members of the Fifty-Year Club were present: Dr. G. G. Armstrong, Houston; Dr. J. G. Backstrom, Tutwiler; Dr. M. L. Batson, Jackson; Dr. B. L. Crawford, Tylertown; Dr. Isaac Edwards, Canton; Dr. J. H. Fox, Jackson; Dr. W. H. Frizell, Brookhaven; Dr. Harvey F. Garrison, Sr., Jackson; Dr. J. R. Hill, Corinth; Dr. C. H. Holman, Carrollton; Dr. D. W. Jones, Jackson; Dr. G. W. Land, Louin; Dr. B. J. Marshall, Whitfield; Dr. L. L. Minor, R.F.D., Memphis, Tennessee; Dr. W. W. McBride, Ethel; Dr. J. S. McIntosh, Jackson; Dr. H. C. Owen, Holly Bluff; Dr. E. C. Parker, Gulfport; Dr. G. W. F. Rembert, Jackson; Dr. H. M. Terry, Goodman; Dr. S. R. Towns, Union Church (newly elected member); and Dr. N. C. Waldrep, Tishomingo.

After Dr. B. J. Marshall, oldest member of the group, asked the blessing, Dr. Avent introduced the following guests: Dr. W. H. Anderson, Booneville, sponsor of the club; Mr. C. P. Loranz, executive secretary, Southern Medical Association, Birmingham, Alabama; Dr. M. Q. Ewing, president, Mississippi State Medical Association, Amory; Dr. C. H. McCall, president-elect, Mississippi State Medical Association, Gulfport; Mr. Richard C. Williams, executive director, Mississippi Hospital and Medical Service, Jackson; Dr. F. S. Hill, Grenada; and Miss Cleta Brinson, secretary to Dr. Felix J. Underwood, who served as recording secretary.

Dr. Underwood's report, which expressed regret that he could not be present, and Dr. Avent read the following names of those members of the club who had been passed on since the 1953 meeting: Dr. J. W. Barksdale, Jackson; Dr. B. H. Booth, Drew; Dr. T. M. Dye, Clarksdale; Dr. H. R. Fairfax, Brookhaven; Dr. C. O. Farrar, Nettleton; Dr. J. H. Green, Tupelo; Dr. J. J. Landreth, Bruce;

Dr. W. L. Little, Wesson; Dr. G. I. Redditt, McCarley; Dr. W. H. Scudder, Mayersville; Dr. F. Michael Smith, Vicksburg; Dr. D. P. Street, Vicksburg; Dr. J. Rice Williams, Houston; and Dr. G. H. Wood, Batesville.

There have been 115 members of the club up to the present time, with 67 members now living. Mention was made that one member, Dr. J. W. Dicks, lives in Swarthmore, Pennsylvania (314 Lafayette Avenue), and that the two honorary members of the club who could not be present; namely, Dr. Seale Harris, Birmingham; and Dr. Rudolph Matas, New Orleans.

Telegrams were sent to Dr. Hugh Gamble, and Dr. G. S. Bryan, Amory, each expressing the club's concern for them.

The following new members have come into the club since May, 1953: Dr. G. G. Armstrong, Houston; Dr. B. L. Crawford, Tylertown; Dr. J. W. Dicks, Swarthmore, Pennsylvania; Dr. J. H. Fox, Jackson; Dr. W. P. Gray, Waynesboro; Dr. J. R. Hill, Corinth; Dr. W. L. Leak, Maud; Dr. J. S. McIntosh, Jackson; Dr. G. W. F. Rembert, Jackson; Dr. E. A. Sigrest, Flora; Dr. J. D. Sweany, Minter City; Dr. H. M. Terry, Goodman; Dr. J. M. Wright, Hernando; and Dr. Sherrod R. Towns.

The present officers were voted to be continued for another year: Dr. W. H. Frizell, Brookhaven, president; Dr. B. Lampton Crawford, Tylertown, vice-president; Dr. Felix J. Underwood, Jackson, secretary; Dr. W. H. Anderson, Booneville, sponsor.

SOMETHING NEW!

The first Institute on Housekeeping and Maintenance will be held June 16-17, 1954, at Mississippi State College.

This institute is sponsored by the Mississippi Hospital Association, Mississippi Commission on Hospital Care, and the School of Business and Industry, Mississippi State College.

Much interest is manifest in lay and professional groups, and a turn-out attendance is expected.

REGISTERED DIETITIAN NEEDED

C. Phil Wimberly, administrator of the Memorial Hospital of Gulfport, has informed this office of his need for a registered dietitian. Phil will move into his new 130 bed institution during early summer and would like to complete the full compliment necessary to adequately staff the new hospital. If you can supply Phil with any leads, call him collect at Gulfport 4664.

ABSTRACT FROM PEDIATRIC LITERATURE

HARVEY F. GARRISON, M.D.

RENAL WATER REQUIREMENT OF INFANTS FED EVAPORATED MILK WITH AND WITHOUT ADDED CARBOHYDRATE. Edward L. Pratt and Selma E. Synderman, New York City. Pediatrics 11:65-69, January, 1953.

The renal capacity of small infants to excrete the end-products of a concentrated feeding mixture was studied over a six-day period. Comparison was made of the renal water requirement of six rapidly growing small infants on a food mixture composed of 100 cc. of water. The first milk mixture resulted in an intake of about 40 per cent more proetin and minerals than the mixture with added carbohydrate. The renal solute load while receiving the latter had a mean value of 18.7 milliosmoles/Kg body weight/day with standard deviation of 1.8. The concentrated milk mixture resulted in a renal load of 36.4 - 3.1 milliosmoles/Kg. body weight/day; a value 85 per cent higher. This increase in renal load, and hence renal water requirement, reduces the margin of safety against dehydration.

COMMENT

It is a fact well known to most pediatricians that the kidneys of an immature baby during the first few months of life are also immature in their functioning, and therefore it is necessary to prescribe well balanced formulas with sufficient water. It so frequently happens that new mothers who are not well trained in feeding newborn babies, and particularly prematures, do not recognize the need for an extra amount of water. Many physicians, in prescribing formulas for newborns of all types, are prone to arrange formulas in such a manner that there is not enough water in the formula, and therefore the baby's water intake is not adequate. There is, in this connection, one outstanding habit among mothers and especially amont maids and baby-sitters; they give bottles with formulas too frequently and thereby cause gastrointestinal up-sets. There was a tendency among some of the younger physicians, as well as the teaching in hospitals a few years back, to allow babies to take formulas just any time they cried. This has pretty thoroughly demonstrated to those of us who have more experience that we have to learn by experience. Certainly we are beginning to see that this idea was incorrect and that feeding children on at least a fairly well tried and balanced program of hours is much better than feeding them every time they cry.

Fifty Year Club Biographica

GEORGE GLAUCUS ARMSTRONG

George Glaucus Armstrong, son of William L. and Martha Cox Armstrong, was born April 28, 1879 in Sulligent, Alabama.

He finished high school at Pittsburg and graduated from Mississippi Normal College in 1898. He received his medical degree from Memphis Hospital Medical College (University of Tennessee) in 1903. Doctor Armstrong did graduate work in ophthalmology and otolaryngology in Chicago and New Orleans.

Doctor Armstrong was instrumental in organizing the first medical society in Calhoun County. He was one of the organizers and staff member of the Houston Hospital. He also served as president of the Northeast Mississippi Medical Society. On September 28, 1953, he was presented the Fifty-Year service certificate by the University of Tennessee.

After practicing medicine and surgery 18 years in Calhoun County, Doctor Armstrong specialized in eye, ear, nose, and throat and located in Houston in 1920 where he has continued to practice. He has been active in medical, civic and religious affairs. He is a past master and Royal Arch Mason, and ex-chairman of the board of deacons of the Houston Baptist Church.

On May 11, 1954, Doctor Armstrong was honored with lifetime membership in the Fifty-Year Club of the State Medical Association.

" There are more persons over 70 years of age in America today than at any other period in her history," announces one life insurance company. Actuarial and health department figures show that from 1800 to 1900 the "life expectancy of Americans rose from 40 to 47 years of age; but that from 1900 to the present time it has risen from 47 years to 68 years. With old age pensions, social security and greater medical and surgical skill, it is pointed out, there are in the nation millions of healthy old people—not impoverished—but eagerly looking for something to do in their spare time. Especially do they need friends, fellowship, leisure-hour interests. For this help a large proportion of these older people turn to the church, and in many cases find the churches unequipped to serve them. Practically all the home mission agencies of the major churches are studying this new problem—which they think will grow rather than lessen for the remainder of this century—and advising local churches on methods of coping with it.

WALTER PETWAY GRAY

Walter Petway Gray, son of William Garret and Epsy Annie Dubose Gray, was born on October 23, 1879 in Waynesboro, Mississippi.

He attended the public schools in Wayne County and also Waynesboro Collegiate Institute, Waynesboro. He received his medical degree from Tulane Medical School in 1905.

Since graduation, Doctor Gray has practiced in Wayne County, 46 years of this time in Waynesboro.

In June 1918, Doctor Gray was commissioned captain in the medical corps and in World War II, he served on the Wayne County Draft Board.

He has served as president of the Clarke-Wayne Medical Society and has served as delegate of the State Medical Association for many years.

Doctor Gray served as part-time health officer of Wayne County; he has served continuously on the city school board of trustees over a period of twenty years, presiding as chairman for eighteen years. He is senior surgeon for the GM and O RR at Waynesboro. He is a charter member, past-president, and now an honorary member of the Waynesboro Rotary Club. He has been chairman of the board of stewards of the Methodist Church for more than 35 years. He also serves as chairman of the Wayne County Infantile Paralysis fund, and has served as chairman of the Red Cross chapter for many years.

In March, 1954, the State Medical Association honored Doctor Gray with lifetime membership in the Fifty-Year Club.

Doctor Gray continues in the active practice of medicine at Waynesboro where he has served his fellowman faithfully and well for many, many years.

DEATHS

DR. L. B. HUDSON

Services were held in Hattiesburg on May 11 for Dr. Lawrence B. Hudson, Jr.

The 45-year-old physician, a native of Hattiesburg, died unexpectedly at Martinsville, Va., where he was engaged in public health work.

Dr. Hudson was educated in the Hattiesburg public schools at Millsaps College, the University of Mississippi and at the Tulane University Medical School, from which he graduated in 1936. He interned at the Baptist Hospital, New Orleans, and then practiced medicine in Hattiesburg in 1937-38 and part of 1939.

He joined the Mississippi National Guard in 1937 as a first lieutenant and was inducted into Federal service in November, 1940. with the 106th Medical Battalion, 31st Infantry Division. In 1942, he transferred to the air corps and finally was released from active service as a lieutenant colonel in October 13, 1945, following the end of World War II. His service included 18 months in Africa, Italy, Sicily and England.

After his release he was reappointed as lieutenant colonel with the Medical Corps of the Mississippi National Guard and was assigned as commander of the 106th Medical Battalion, serving until January, 1951.

He engaged in the general practice of medicine prior to going into public health work in Martinsville about a year ago.

Survivors include his wife; three daughters, Anne, Jean and Beth; his mother, Mrs. L. B. Hudson of Hattiesburg; two brothers, Warren and Frank of Jackson; and three sisters, Mrs. W. N. Magee of Jackson, Mrs. Calvin Broome of Hattiesburg, and Mrs. Lloyd Wentworth of Birmingham.

DR. A. L. GREGORY

Services for Dr. A. L. Gregory, widely known and beloved physician of the Birmingham Ridge area for 40 years, were held April 26. He was 64.

He had not been in good health for several months.

Born at Mooreville, Dr. Gregory received his M.D. degree from the University of Tennessee Medical College and served his intership at Vanderbilt University Hospital. He was a deacon in the Baptist church and was active in public affairs of his community. He was a member of the American Medical Association and was a Mason. He had spent all but the first year of his medical practice in the Birmingham community near Saltillo.

Dr. Gregory leaves his wife, the former Miss Lilly Dillard of Saltillo, to whom he was married on October 28, 1913; a daughter, Miss Frances Gregory; a son, Leroy Gregory, of Memphis; four sisters, Mrs. Fannie Jernigan of Ripley; Mrs. Mattie Cook and Miss Della Gregory, both of Auburn, and Mrs. Dolly Suggs of Idabell, Okla.; and a brother, Willie Gregory of Auburn.

DR. ROBERT DODD

Dr. Robert Lapsey Dodd, prominent resident of Kosciusko, was found dead May 5 at his home.

He had been in ill health for some time. It was thought that he died in his sleep.

Mr. Dodd was the son of the late Samuel Lapsey Dodd and Mrs. Evie Webb Dodd, well known residents of Kosciusko and active for many years in civic, community and church affairs. He was born in Kosciusko October 13, 1893. His wife, Mrs. Frances Field Jones Dodd, preceded him in death about five years ago.

Dr. Dodd attended Culver Military Academy and was a graduate of Tulane University medical school. He began practicing in Kosciusko about 1921, and has a large practice.

IN MEMORIAM

Whereas, The Great Physician and Ruler of the Universe has seen fit to take from our midst the life of Dr. J. Rice Williams of Houston, Mississippi; and

Whereas, this great man was one of the organizers of this splendid medical society and has contributed as much, or more, to its success than any other individual by his loyalty, attendance, and his service in every respect; and

Whereas, Dr. J. Rice Williams has not only been loyal and a stalwart supporter of this organization, but has been one of the greatest leaders of all times in our State Medical Association and served this organization in a capacity that few men could have served, especially as Speaker of the House of Delegates for many, many years, where his rulings were so perfect that no one raised a question concerning them; and

Whereas, nothing but good can be said of this man as a physician, a citizen, husband, father, fraternal expert and Christian gentleman; and

Whereas, The Northeast Mississippi Medical Society will miss his advice, counsel, love and splendid work in our organization;

Therefore Be It Resolved, this society, the Northeast Mississippi Medical Society, in regular session, hereby express to people everywhere the great loss we have suffered in the death of so good a man; and

Be It Further Resolved, that we extend our deepest sympathy to the family of Dr. J. Rice Williams; and

Be It Further Resolved, that a copy of these resolutions be placed on our minutes and published by the Mississippi Doctor and turned over to the press, especially in the counties comprising this Association.

V. B. Philpot
E. K. Guinn
John D. Dyer, Committee

DR. ALLEN EMERY RAMAY

Services for Dr. Allen Emery Ramay of Water Valley were held on February 7, at Water Valley.

Dr. Ramay, who was 40, was found dead at his residence Sunday afternoon. A coroner's inquest ruled that he died of a heart attack.

Born in Water Valley, he was graduated from the University of Alabama and Northwestern University School of Medicine. Following four years in service during World War II, he returned to Water Valley. He was a Methodist.

He leaves his parents, Mr. and Mrs. J. A. Ramay of Springfield, Ohio.

DR. J. W. ELLIS

Services for Dr. Joseph William Ellis, Drew physician who died at his home, were held March 1.

Dr. Ellis was born in Lauderdale County. He was educated in the Lauderdale County schools, the University of Tennessee, Vanderbilt and the University of Chicago. He was a member of the Metho-

(Continued on page 30)

Woman's Auxiliary

OFFICERS

President	Mrs. M. M. Snelling	Gulfport
President-Elect	Mrs. R. C. O'Ferrall	Jackson
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Second Vice-President	Mrs. James A. Kiely	Vicksburg
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Bulletin	Mrs. James T. Thompson	Moss Point
Doctor's Day	Mrs. E. L. Posey, Jr.	Jackson
Nurse Recruitment	Mrs. Elmer D. Gay	Gulfport
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Third District	Mrs. M. Q. Ewing	Amory
Fourth District	Mrs. M. S. Riddell, Jr.	Winona
Fifth District	Mrs. George E. Riley	Jackson
Sixth District	Mrs. Maya L. Flynt	Meridian
Seventh District	Mrs. C. C. Hightower, Jr.	Hattiesburg
Eighth District	Mrs. J. A. Atkinson	Brookhaven
Ninth District	Mrs. Archibold C. Hewes	Gulfport

§

MRS. SNELLING BECOMES PRESIDENT; MRS. O'FERRALL NEW PRESIDENT-ELECT

From the Gulf Coast comes Isabelle Snelling (her picture next month), whose charm and interests just about cover the list for the ideal doctor's wife. A councilor several times from her district and a regular attendant at auxiliary meetings for years past, Mrs. Snelling brings experience and understanding to the office. She's going to neglect some of those beloved hobbies—growing tropical flowers in her garden, adding good pieces of early American glass to her store of antiques, and traveling around with her husband—for Auxiliary and grandchildren are her majors this year. There will be five grandchildren by October, she elates, and she's happy that they are there in Gulfport near her. Her church work which she loves, and which claimed three years of leadership from her as president of the Altar Guild (Episcopalian), will still claim a deserved part of her time.

The Snellings have two sons and one daughter, all at home after their prescribed time in the combat infantry and paratroops.

Peruse the new masthead for the officers who will serve us this year, and pause for a hearty salute to our new president-elect, Mrs. R. C. O'Ferrall of Jackson, who gives gracious promise of holding the organization banner high this year. Endowed with bounce and sparkle, efficiency and tact, her acceptance of the office is heralded with state-wide approval.

DOTS COMPLETE!

Among red-letter attainments during Mrs. S. Lamar Bailey's year as president, three new auxiliaries were organized, permitting the Auxiliary official map of Mississippi to wear "organized" dots in every county in the state! And, what's more, the total membership for the state is 681, the largest ever reached.

Reports at the annual meeting in Jackson, May 11-12, showed varying activities over the state, from enthusiastic Doctor's Day observances, new nurse scholarships set up, and individual projects cooperating with local hospital and doctors, to sponsoring of AMEF donations. Mrs. Bailey handed a banner year to her susccessor!

The thirty-first annual convention of the Woman's Auxiliary to the American Medical Association will be held in San Francisco, California, tion, held in San Francisco, California, this month, will hear from Mrs. Bailey of Mississippi's progress.

TO TRI-COUNTY DOCTORS

(The following was contributed by Mrs. W. L. Little of Wesson when her auxiliary celebrated Doctor's Day).

Greetings, dear friends, and let me say
"Welcome to you this Doctor's Day!"
I may not express in a poetic way
The things I would truly love to say;
I have not drunk from the Pierian spring,
—Just city water is the only thing;
And my crude expressions, I am afraid,
You will consider them too home made.

But these simple lines are meant to convey
Good wishes for all on this 'Doctor's Day.'
I am hoping the year just past has brought
Success, for work so bravely sought,
And, for long trips o'er vale and hills,
A lot of well paid doctor bills.

And may the New Year, fifty-four,
Bring a successful doctor score
When fellow beings, suffering pain
Are restored to perfect health again.
I hope not one of you doctors here
Will miss a meeting like this next year
But will heartily greet each other and say
'So glad to see you this Doctor's Day."

(Continued from page 28)

dist church and a Mason. Dr. Ellis married the former Carrie Smith of Senatobia.

He leaves his wife; a son, Dr. Robert Smith Ellis, chief surgeon, Oktibbeha County Hospital at Starkville; two daughters, Miss Josephine Ellis of Laurel and Mrs. Carolyn E. Franklin of Shreveport, La.; a brother, John R. Ellis of Meridian, and a sister, Mrs. Coker of Arkansas.

DR. B. J. McRAE

Dr. B. J. McRae, 73, died at Rush's Memorial hospital in Meridian April 27.

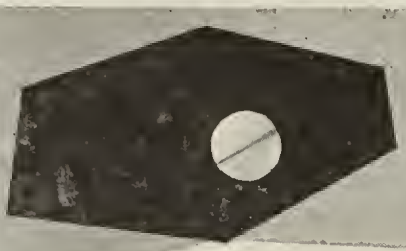
Dr. McRae was born in Clarke County, and received his medical education at the Mississippi Medical College, being awarded an M.D. degree in 1909.

Dr. McRae is survived by his wife, Mrs. Dora McRae; one brother, Howard McRae, Enterprise; two sisters, Mrs. Mattie Hegwood, Enterprise, and Mrs. Claudie Mae Norris, Mt. View, Ark.

ASMT

The 22nd annual National Convention of the American Society of Medical Technologists will be held at Miami Beach, Florida, June 13-17, 1954. The co-headquarters are the Delano and DiLido.

FOR SALE—Seventy-five milligrams of radium. Price very reasonable. Write Dept. A. *The Mississippi Doctor*, Booneville, Miss.



A **NEW** *tranquilizer-antihypertensive combination, especially for moderate and severe essential hypertension...*

T. M.
Serpasil-Apresoline®
hydrochloride

(RESERPINE AND HYDRALAZINE HYDROCHLORIDE CIBA)

COMBINING IN A SINGLE TABLET: The tranquilizing, bradycrotic and mild antihypertensive effects of Serpasil, a pure crystalline alkaloid of rauwolfia root. The more marked antihypertensive effect of Apresoline and its capacity to increase renal plasma flow.

Each tablet (scored) contains 0.2 mg. of Serpasil and 50 mg. of Apresoline hydrochloride.

C I B A
Summit, N.J.

2/ 2018M

Patients, Water and Salt*

HENRY SWAN, M.D.†
Denver, Colo.

THE MANAGEMENT of the needs of a patient in whom there is derangement of water and electrolytes is an important aspect of the management of the underlying disease. This need is complicated. It involves thinking in terms of biochemistry on a multitude of variables. I am presenting here a method of approach which has been found useful in meeting the day-to-day problems arising in this area of therapeutics.

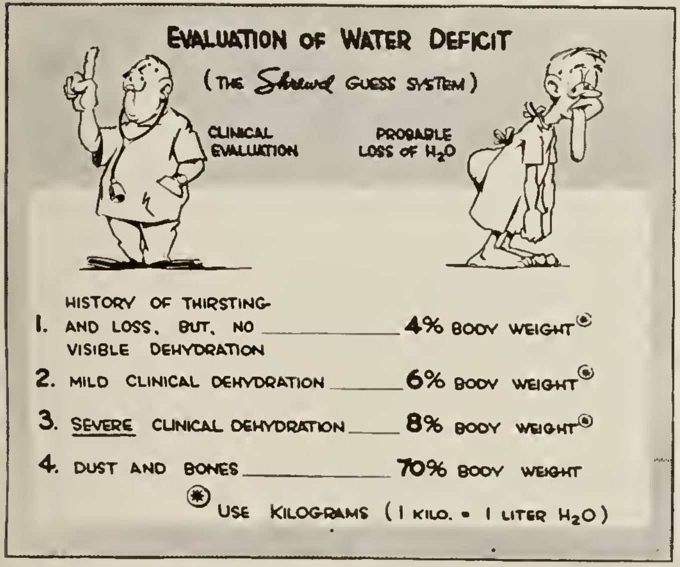

EVALUATION OF WATER DEFICIT
(THE Shrewd GUESS SYSTEM)
CLINICAL EVALUATION
PROBABLE LOSS OF H_2O
1. HISTORY OF THIRSTING AND LOSS, BUT, NO VISIBLE DEHYDRATION ____ 4% BODY WEIGHT*
2. MILD CLINICAL DEHYDRATION ____ 6% BODY WEIGHT*
3. SEVERE CLINICAL DEHYDRATION ____ 8% BODY WEIGHT*
4. DUST AND BONES ____ 70% BODY WEIGHT
* USE KILOGRAMS (1 KILO. = 1 LITER H_2O)

Fig. 1

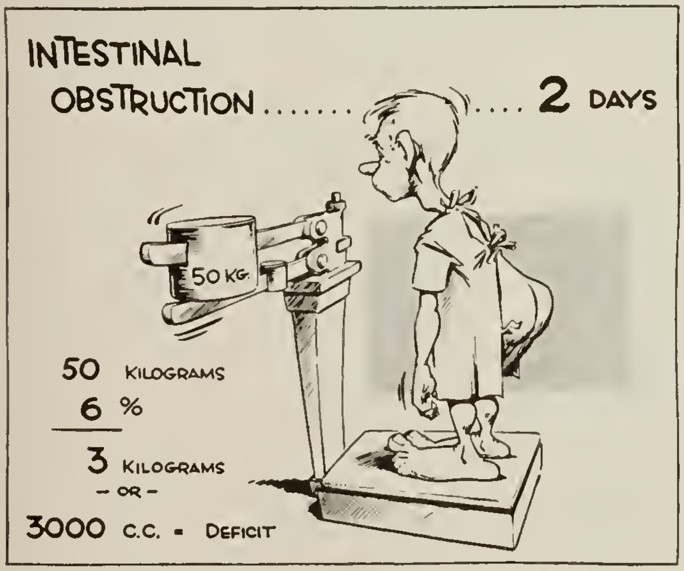

INTESTINAL OBSTRUCTION .... 2 DAYS
50 KG.
50 KILOGRAMS
6 %
3 KILOGRAMS
— OR —
3000 C.C. = DEFICIT

Fig. 2

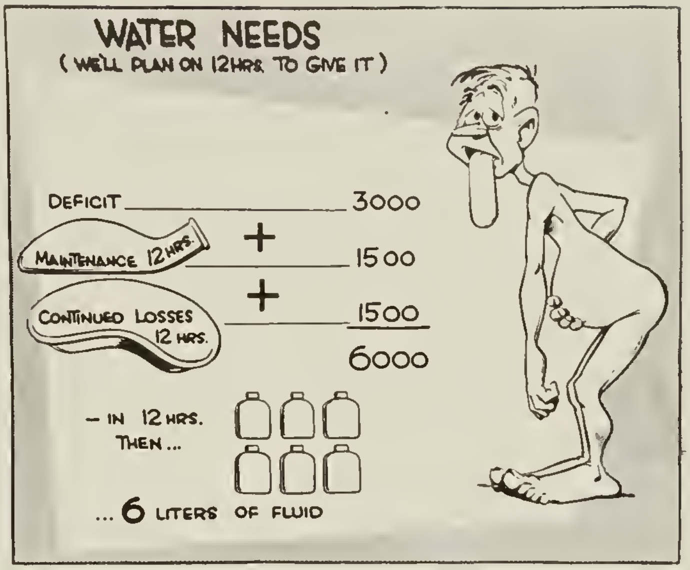

WATER NEEDS
(WE'LL PLAN ON 12HRS. TO GIVE IT)
DEFICIT ____ 3000
MAINTENANCE 12HRS. + ____ 1500
CONTINUED LOSSES 12 HRS. + ____ 1500
6000
— IN 12 HRS. THEN ...
... 6 LITERS OF FLUID

Fig. 3

The most important principle involved is the approach to the problem which considers each unit separately. One must think first of the water, then of each ion in turn. Finally, having assessed the needs in terms of deficit, normal requirements during the repair period, water of hydration, and continuing loss for each of the units, one may then reassemble the problem in the practical terms of number of bottles of what solution. This approach avoids the confusion of attempting to manipulate too many unknowns simultaneously.

Throughout this presentation, the management of dehydration is illustrated by the example of a patient with intestinal obstruction of two days duration who has been vomiting copiously and who shows mild clinical evidence of dehydration.

It should not be thought, because of the presence of formulas, that the management of fluid and electrolyte problems is a truly scientific exercise. It is rather a skillful blend of clinical impression, shrewd guess, and biochemical principles. The methods involved include crude systems. Numbers can be rounded off. But they result in a considered plan of action which can be modified as time goes on; a plan based originally on the specific needs of the specific patient, yet flexible enough to be modified as clinical results vary from those predicted. The therapy is, therefore, removed from the empirical category of "two bottles of saline."

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*Presented at the sixty-fifth annual session of the Mid-South Postgraduate Medical Assembly, Memphis, Tenn., February 9-12, 1954.

†From the Department of Surgery, University of Colorado School of Medicine, Denver, Colorado.

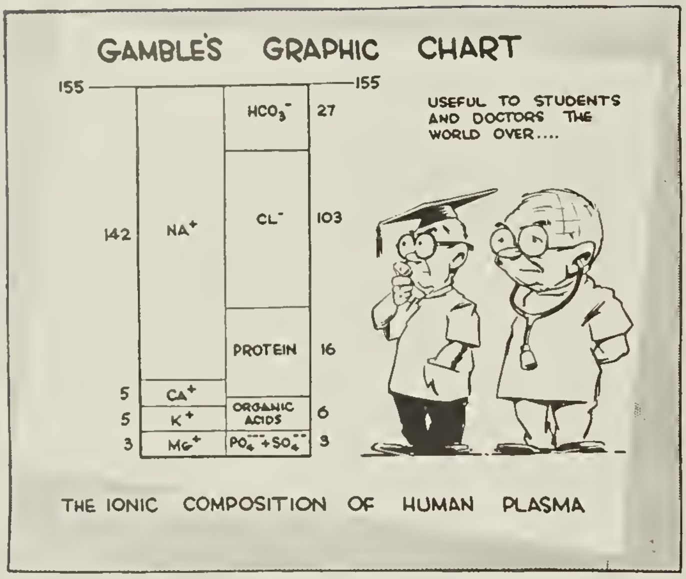


Fig. 4

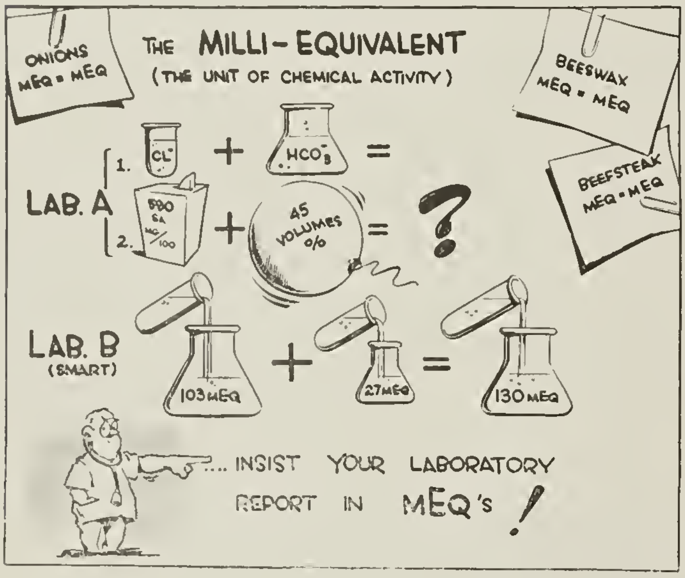

THE MILLI-EQUIVALENT
(THE UNIT OF CHEMICAL ACTIVITY)
ONIONS MEQ = MEQ
BEESWAX MEQ = MEQ
BEEFSTEAK MEQ = MEQ
LAB. A
1. CL^- + HCO_3^- =
2. 590 CA MG/100 + 45 VOLUMES % = ?
LAB. B (SMART)
103 MEQ + 27 MEQ = 130 MEQ
.... INSIST YOUR LABORATORY REPORT IN MEQ's !

Fig. 5

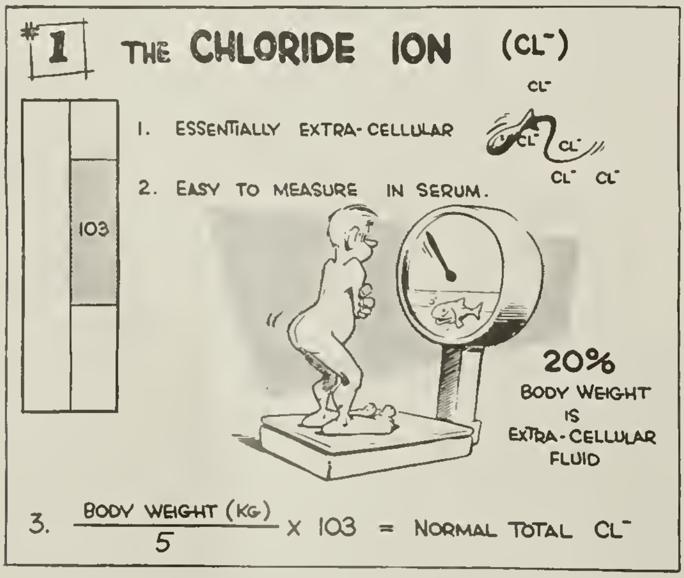

#1 THE CHLORIDE ION (CL^-)
103
1. ESSENTIALLY EXTRA-CELLULAR
CL^- CL^- CL^- CL^- CL^-
2. EASY TO MEASURE IN SERUM.
20% BODY WEIGHT IS EXTRA-CELLULAR FLUID
3. $\frac{\text{BODY WEIGHT (KG)}}{5}$ x 103 = NORMAL TOTAL CL^-

Fig. 6

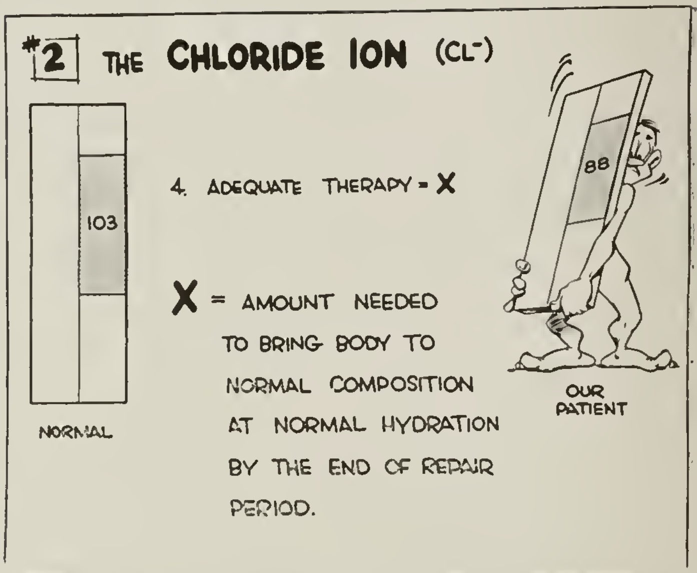

#2 THE CHLORIDE ION (CL^-)
103
NORMAL
4. ADEQUATE THERAPY = X
X = AMOUNT NEEDED TO BRING BODY TO NORMAL COMPOSITION AT NORMAL HYDRATION BY THE END OF REPAIR PERIOD.
88
OUR PATIENT

Fig. 7

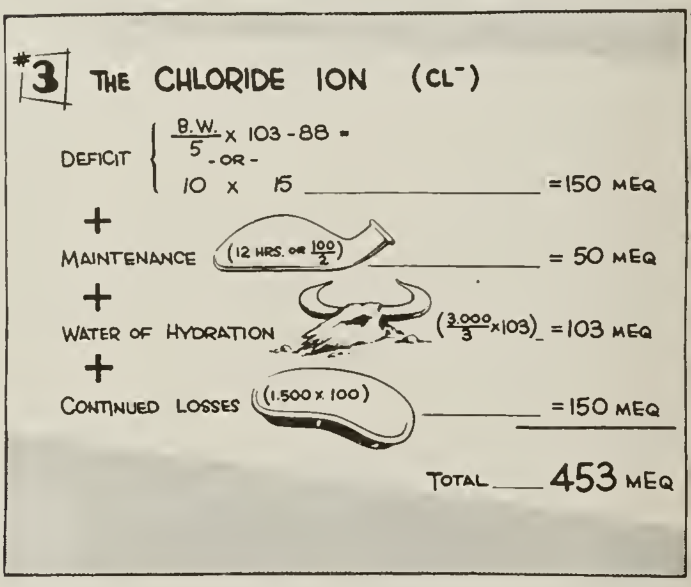

#3 THE CHLORIDE ION (CL^-)
DEFICIT $\frac{B.W.}{5}$ x 103 - 88 = - OR - 10 x 15 = 150 MEQ
+
MAINTENANCE (12 HRS. OR $\frac{100}{2}$) = 50 MEQ
+
WATER OF HYDRATION ($\frac{3.000}{3}$x103) = 103 MEQ
+
CONTINUED LOSSES (1.500 x 100) = 150 MEQ
TOTAL 453 MEQ

Fig. 8

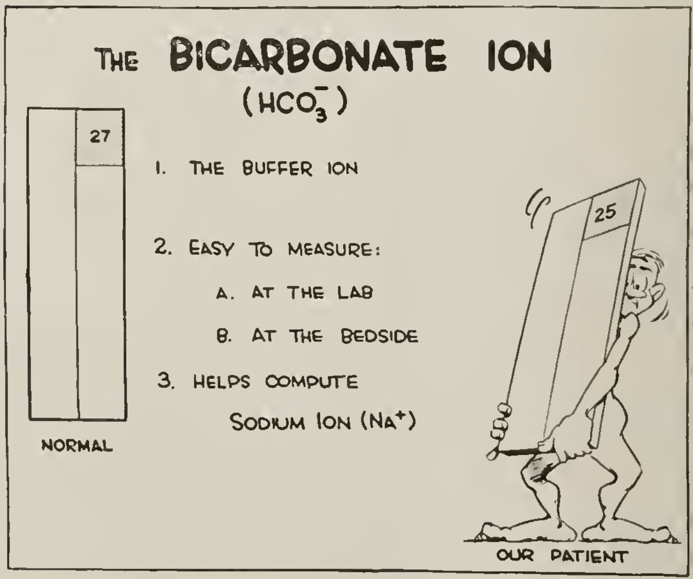
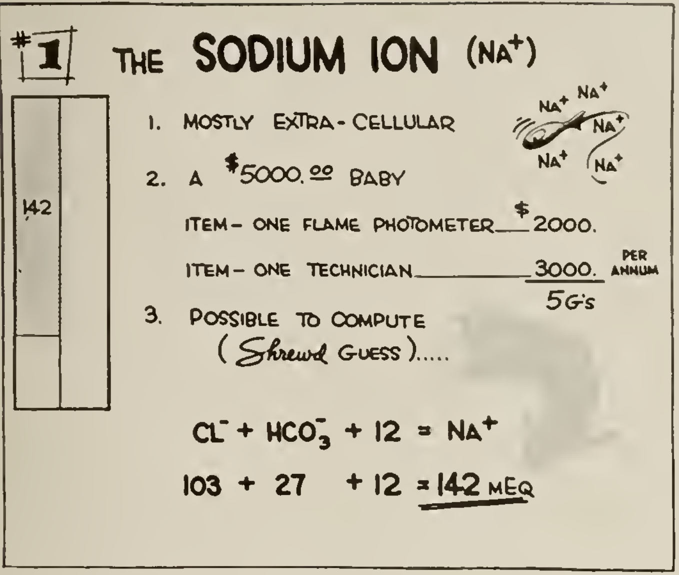

THE BICARBONATE ION
(HCO_3^-)
27
NORMAL
1. THE BUFFER ION
2. EASY TO MEASURE:
A. AT THE LAB
B. AT THE BEDSIDE
3. HELPS COMPUTE SODIUM ION (NA^+)
25
OUR PATIENT

Fig. 9



142
NA+
NA+
NA+
NA+
NA+

#1 THE SODIUM ION (Na^+)

1. MOSTLY EXTRA-CELLULAR
2. A $5000.00 BABY

ITEM – ONE FLAME PHOTOMETER ____ $2000.

ITEM – ONE TECHNICIAN ____ 3000. PER ANNUM

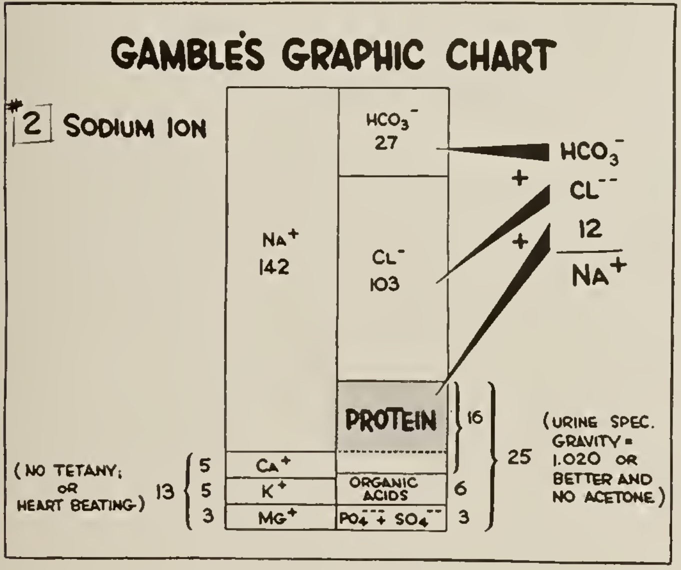
5G's

3. POSSIBLE TO COMPUTE (Shrewd GUESS).....

$Cl^- + HCO_3^- + 12 = Na^+$

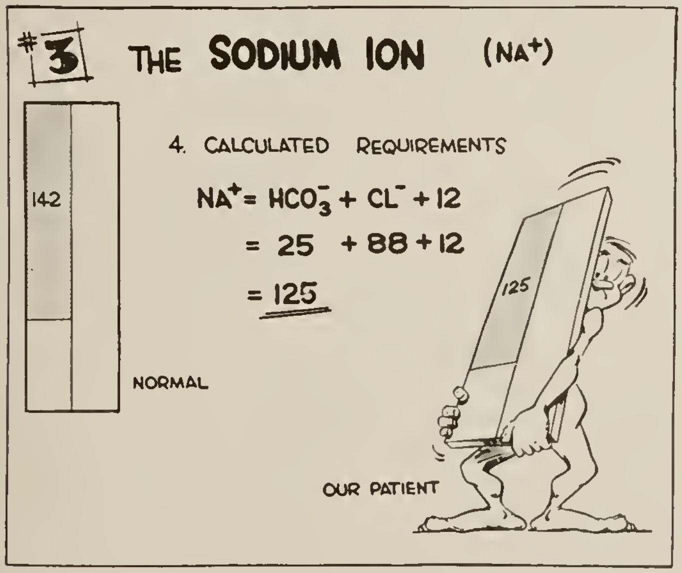
$103 + 27 + 12 = \underline{142}$ MEQ

Fig. 10



GAMBLE'S GRAPHIC CHART
#2 SODIUM ION
NA+ 142
HCO3- 27
CL- 103
PROTEIN
16
25
CA+ 5
K+ 5
MG+ 3
13
ORGANIC ACIDS 6
PO4--- + SO4-- 3
HCO3-
+ CL--
+ 12
NA+
(NO TETANY; OR HEART BEATING)
(URINE SPEC. GRAVITY = 1.020 OR BETTER AND NO ACETONE)

Fig. 11



142
NORMAL
125
OUR PATIENT

#3 THE SODIUM ION (Na^+)

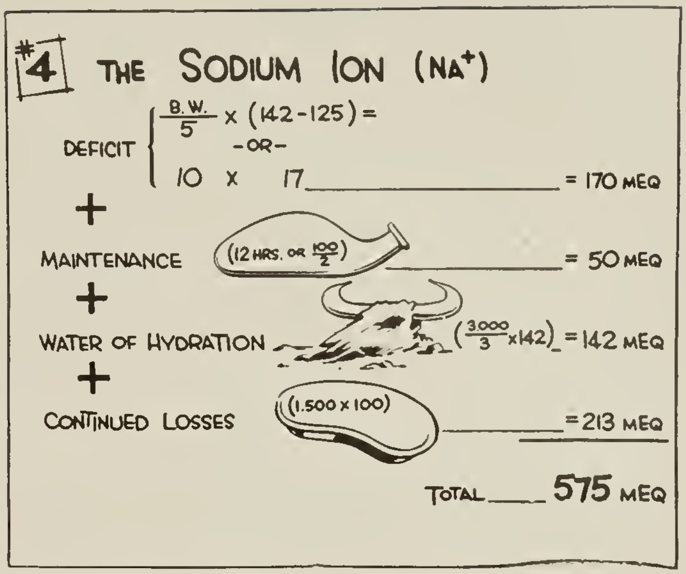
4. CALCULATED REQUIREMENTS

$Na^+ = HCO_3^- + Cl^- + 12$

$= 25 + 88 + 12$

$= \underline{125}$

Fig. 12



(12 HRS. OR 100/2)
(3000/3 × 142)
(1.500 × 100)

#4 THE SODIUM ION (Na^+)

DEFICIT $\left\{ \frac{B.W.}{5} \times (142-125) = \right.$ –OR– 10 × 17 ____ = 170 MEQ

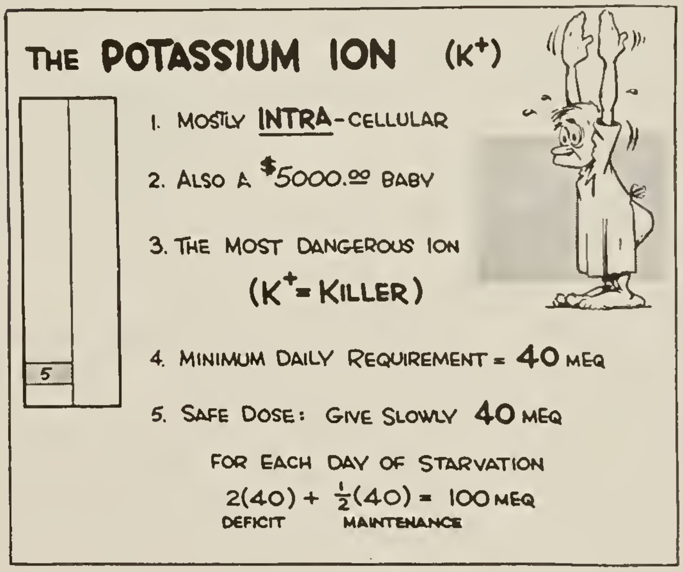
+ MAINTENANCE (12 HRS. OR $\frac{100}{2}$) ____ = 50 MEQ

+ WATER OF HYDRATION ($\frac{3000}{3} \times 142$) ____ = 142 MEQ

+ CONTINUED LOSSES (1.500 × 100) ____ = 213 MEQ

TOTAL ____ 575 MEQ

Fig. 13



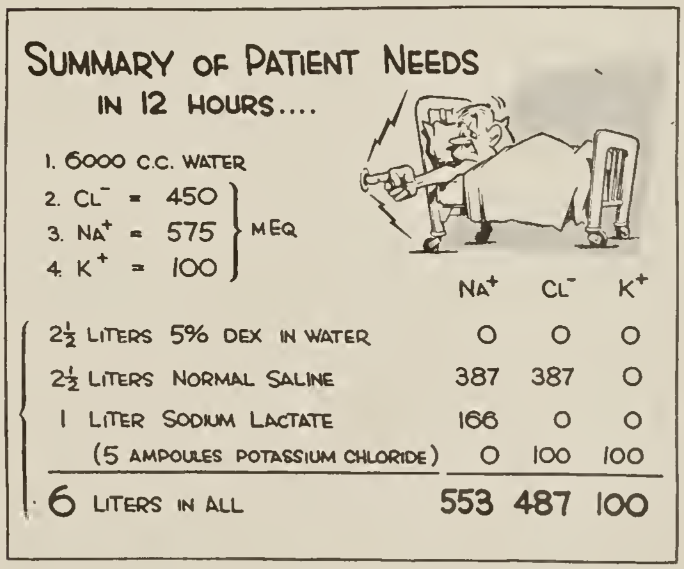
THE POTASSIUM ION (K^+)

1. MOSTLY INTRA-CELLULAR
2. ALSO A $5000.00 BABY
3. THE MOST DANGEROUS ION (K^+ = KILLER)
4. MINIMUM DAILY REQUIREMENT = 40 MEQ
5. SAFE DOSE: GIVE SLOWLY 40 MEQ FOR EACH DAY OF STARVATION

$2(40) + \frac{1}{2}(40) = 100$ MEQ

DEFICIT MAINTENANCE

Fig. 14



SUMMARY OF PATIENT NEEDS IN 12 HOURS....

1. 6000 C.C. WATER
2. Cl^- = 450 MEQ
3. Na^+ = 575 MEQ
4. K^+ = 100 MEQ

	Na^+	Cl^-	K^+
2½ LITERS 5% DEX IN WATER	0	0	0
2½ LITERS NORMAL SALINE	387	387	0
1 LITER SODIUM LACTATE	166	0	0
(5 AMPOULES POTASSIUM CHLORIDE)	0	100	100
6 LITERS IN ALL	553	487	100

Fig. 15

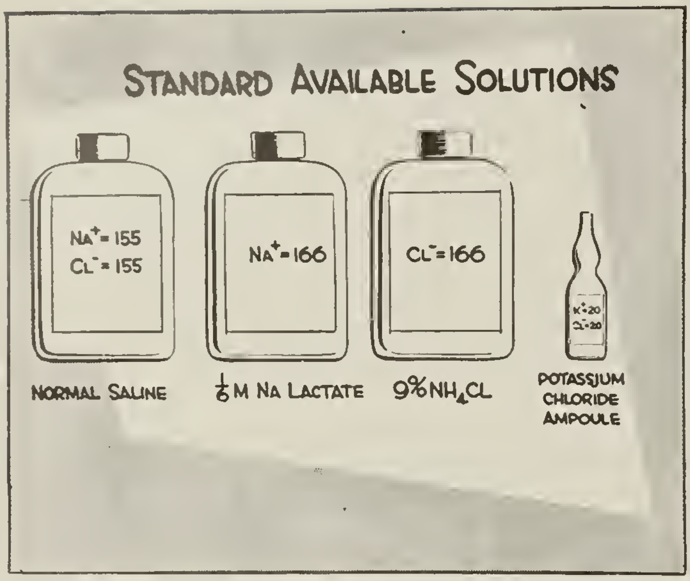

STANDARD AVAILABLE SOLUTIONS
NA+ = 155
CL- = 155
NA+ = 166
CL- = 166
K+20
CL-20
NORMAL SALINE
1/6 M NA LACTATE
9% NH4CL
POTASSIUM CHLORIDE AMPOULE

Fig. 16

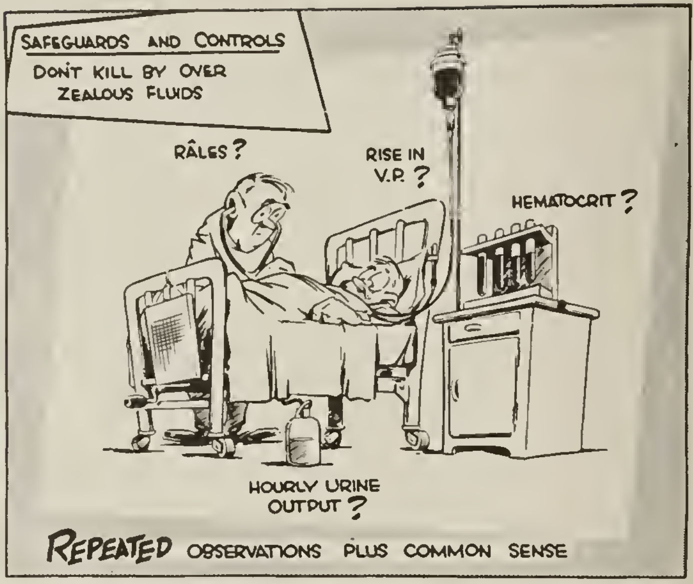
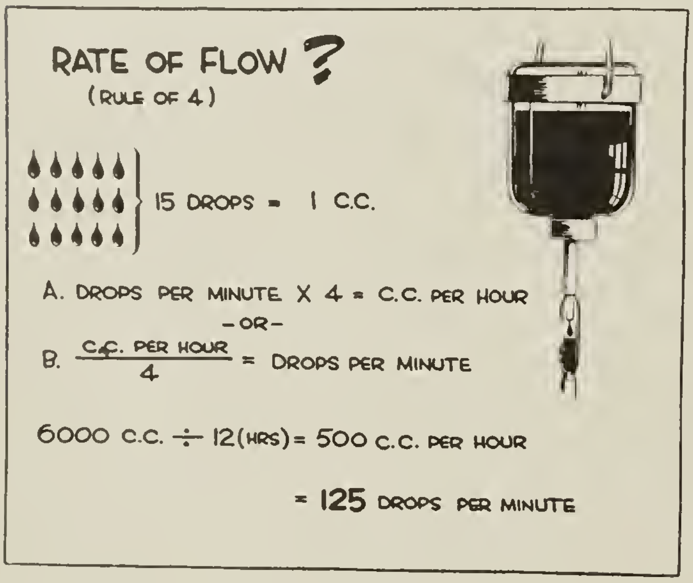

SAFEGUARDS AND CONTROLS
DON'T KILL BY OVER ZEALOUS FLUIDS
RÂLES ?
RISE IN V.P. ?
HEMATOCRIT ?
HOURLY URINE OUTPUT ?
REPEATED OBSERVATIONS PLUS COMMON SENSE

Fig. 18



RATE OF FLOW ?
(RULE OF 4)

15 DROPS = 1 C.C.

A. DROPS PER MINUTE X 4 = C.C. PER HOUR
-OR-
B. $\frac{\text{C.C. PER HOUR}}{4}$ = DROPS PER MINUTE

6000 C.C. ÷ 12 (HRS) = 500 C.C. PER HOUR
= 125 DROPS PER MINUTE

Fig. 17

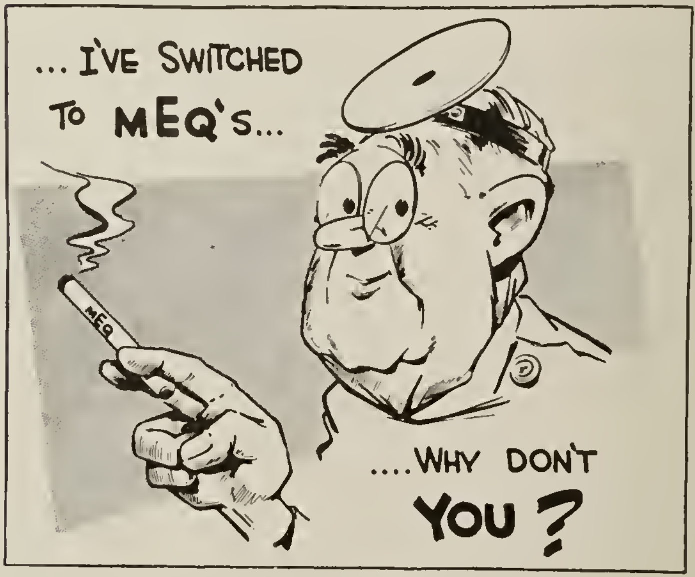

... I'VE SWITCHED TO MEQ'S...
MEQ
....WHY DON'T YOU ?

Fig. 19

The illustration depicting safety measures (Figure 18) is most important. The patient receiving vigorous fluid therapy should be under repeated observation. His urinary output should be between 35 and 70 cc. per hour (inlying urethral catheter required). Rise in venous pressure is an early clinical sign and all it takes is a three-way stopcock and a glass tube as part of the intravenous system in order to obtain a measurement. That forgotten tool, the stethoscope, should be applied to the lung bases not less often than every four hours. Rales are bad.

Why let your laboratory make your thinking difficult by talking to you in foreign languages? You will be happier if you take the last cartoon seriously and show it to the chief of your laboratory.

"And not by eastern windows only,
When daylight comes, comes the light;
In front, the sun climbs slow, but slowly;
But westward, look, the land is bright."

The Current Status of Cardiac Surgery*

JAMES D. HARDY, M.D., F.A.C.S.
and
FRANCIS H. COLE, M.D., F.A.C.S.
Memphis, Tennessee

MANY OPERATIONS upon the heart and great vessels have become so commonplace that it is difficult to realize that the first successful ligation of the patent ductus arteriosus was done in 1938 and that the first successful resection of a coarctation of the aorta was performed in 1945, less than ten years ago. The past five years have witnessed a growth and expansion of cardiovascular surgery which was hardly even dreamed of a decade ago. A number of heart operations are now considered to be routine and are performed in all surgical centers of significant size. Many other operations have not yet become routine, but are performed with a frequency which will justify their inclusion in such a category in the near future. Finally, the defects which have heretofore not been accessible to surgical attack may in the near future be corrected under direct vision in a heart from which the blood has been temporarily diverted.

It would seem appropriate at this time, therefore, to examine critically the various operations which are currently being offered for the correction of cardiac conditions in order to define the relative merits of the procedures. Many of the operations are almost uniformly successful, others are commonly successful, and still others are rarely successful. The following classification is offered as a tentative guide:

CONDITIONS IN WHICH OPERATION IS USUALLY SUCCESSFUL

1. Patent ductus arteriosus
2. Coarctation of the aorta
3. Tetralogy of Fallot
4. Pure pulmonic stenosis
5. Vascular rings compressing the trachea and esophagus
6. Acquired rheumatic mitral stenosis
7. Constrictive pericarditis
8. Pulmonary arteriovenous fistulas

CONDITIONS IN WHICH OPERATION IS FREQUENTLY SUCCESSFUL

1. Aortic stenosis
2. Arteriovenous fistulas
3. Interatrial septal defects
4. Aneurysms of the aorta

CONDITIONS IN WHICH OPERATION IS RARELY SUCCESSFUL

1. Mitral insufficiency.
2. Aortic insufficiency.
3. Coronary insufficiency.
4. Transposition of the pulmonary veins.
5. Transposition of the aorta and the pulmonary artery.
6. Eisenmenger's complex.
7. A common ventricle.
8. Fused heart in Siamese twins.
9. Other rare conditions.

The separation of these various conditions into the three groups is purely arbitrary and with time we shall unquestionably witness an upward progression of many of these conditions in the scale.

FACTS ABOUT PATENT DUCTUS ARTERIOSUS

1. *Life Expectancy* without Rx is about forty years; with Rx, normal if operated upon early.
2. *Cause of Death*: Heart failure and SBE.
3. *Diagnosis*: Machinery-like murmur over upper left chest anteriorly. Fluoroscopy shows hilar dance and x-ray shows enlarged pulmonary conus. Angiography may show defect. Cardiac catheterization reveals increased pressure and oxygen concentration in pulmonary artery.
4. *Optimal age for operation*: Four to puberty.
5. *Surgical Procedure*: Ligation of ductus in continuity or division and suture of divided ends. Operative mortality two per cent.

PATENT DUCTUS ARTERIOSUS

The patent ductus arteriosus was first successfully ligated by Dr. Robert Gross of Boston in 1938, and since that time this procedure has become one of the most gratifying ones in the repertoire of the cardiac surgeon. The establishment of the diagnosis is usually sufficient indication for operation. It has been shown that life expectancy is seriously curtailed by this condition; the operative mortality in competent hands is in the neighborhood of two to three per cent. We prefer to perform this operation between the ages of four and twelve, though occasionally circumstances may require prompt intervention in much younger children. The dangers attendant upon unnecessary delay of the operation are that subacute bacterial endocarditis (SBE) may involve the patent ductus, irreversible changes may occur in the end vessels of the pulmonary artery, or heart failure may be produced merely by the presence of the arteriovenous fistula (as in the leg). As the patient grows older the operation becomes technically more hazardous, in that as the aorta and the pulmonary artery enlarge the ductus tends to become shorter and wider and its walls may become quite thin. There is a considerable difference of opinion as to whether the patent ductus should be ligated in continuity or whether it should be divided and the ends oversewn. In children the patent ductus is usually of adequate length to permit the application of three ligatures, the middle one of which is a suture ligature, and we usually employ this technic under such circumstances. In the adult the ductus may be so short that sufficient ligatures cannot be applied and under these circumstances we prefer to divide the ductus between two pairs of Potts' patent ductus (comb) clamps and to oversew the ends with two rows of very fine silk. Contrary to the opinion of some, we do not believe that recanalization of the patent ductus is likely if the ligatures have been tied down tightly enough. The comb clamps or Crafoord clamps should always be held in readiness as the ductus is ligated, for any particular ligature may cut through and the clamps greatly facilitate division of the ductus with suture of the ends.

COARCTION OF THE AORTA

A coarctation of the aorta was first successfully resected with end-to-end anastomosis by Crafoord of Stockholm in 1945, followed a short time later by a similarly successful operation by Gross. The presence of a constriction of the aorta should always be suspected in a young person with hypertension whose femoral or foot pulses are faint or absent. These findings in themselves are usually diagnostic but roentgram examination may show a small aortic knob, and the inferior rib margins may show notching due to erosion by the enlarged intercostal arteries. Many surgeons insist upon angiography for final confirmation of the diagnosis, but we do not believe that this procedure is essential and, under certain conditions, it can be hazardous. If the angiocardiogram does not show the coarctation, one is certain to explore the thorax anyway. If the length of the constriction is not well visualized, one is still going to explore the chest. Direct aortography is perhaps the most accurate procedure used in the diagnosis of this type in this condition, but we are aware of at least two deaths which have occurred from its use.

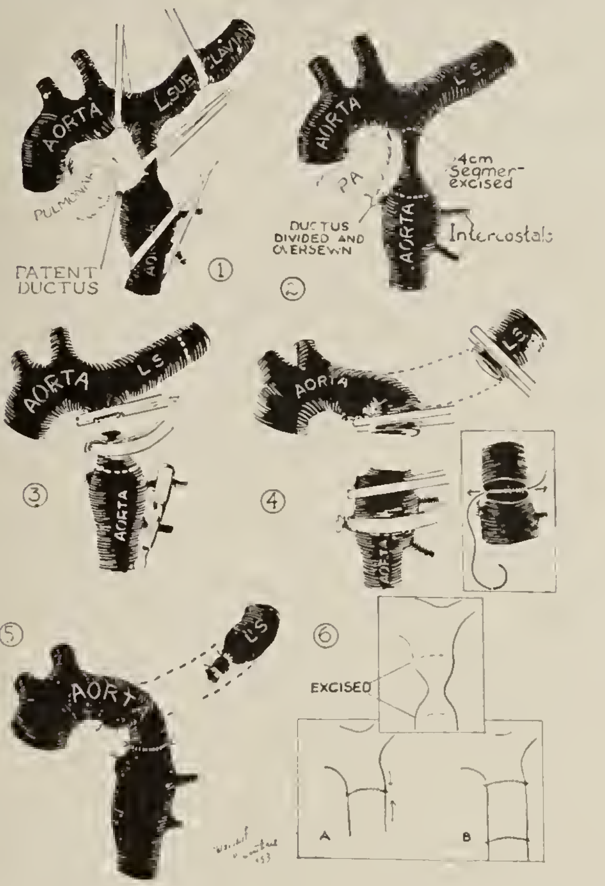
FACTS ABOUT COARCTATION OF THE AORTA

1. *Life Expectancy* without Rx is about 35 years; with Rx presumably normal if operated upon early.
2. *Causes of Death*: Complications of hypertension, including CVA, heart failure, or rupture of the aorta.
3. *Diagnosis*: Hypertension in a young person whose leg pulses are not palpable or barely so. X-ray shows small aortic knob and inferior rib margins may be noticed. Angiography not necessary.
4. *Optimal Age for Operation*: Eight to puberty.
5. *Surgical Procedure*: A. Resection with end-to-end anastomosis. B. Resection with end-to-end anastomosis of proximal end of divided left subclavian insertion of preserved homologous arterial graft. Surgical mortality about 10 per cent.

The types of coarctation which may be encountered vary widely. The constriction is found most commonly just below the origin of the left subclavian artery, at the site of the aortic termination of the ductus arteriosus (or ligamentum arteriosum). There may be only a very slight narrowing of the aorta, or there may be complete occlusion of the vessel so that it will be obvious that no blood has ever flowed through the aorta at this point. When very little blood is found passing through the constriction, the operator need have little concern that the application of clamps to the aorta for resection of the segment and end-to-end anastomosis will result in significant ischemia to the lower portion of the body. In other words, there is no need for haste as there might be if a considerable volume of blood had previously been passing through the narrowed portion of the aorta.

In addition to the variations which may be encountered in the diameter of the constricted portion of the aorta, the length of the narrowed segment varies markedly. The entire segment of involved aorta may be only one to two centimeters in length, or it may be so long that it is impossible to excise it and then bring the ends of the aorta together for end-to-end anastomosis. It is in the attempt to ascertain preoperatively the

Operations for Coarctation of the Aorta



Operations for Coarctation of the Aorta. In Nos. 1, 2, 3, 4, and 5 is depicted the resection of a long coarcted segment with the utilization of the divided left subclavian artery to bridge the defect. In No. 6 (above) is shown the most common type of coarctation and in "A" below is shown the appearance of the aorta after resection and anastomosis. In No. 6 "B" is shown the use of an aortic homograph to bridge a defect of excessive length.

length of the affected aortic segment that many surgeons insist upon preoperative cardioangiography. However, in our experience good visualization of the site of constriction does not always identify the precise length of the constriction. If the defect is not of the simple type which can be readily excised and the end-to-end anastomosis completed, one is faced with two possibilities. One can divide the subclavian artery and unite its proximal end with the aorta below the site of the excised coarctation, or a preserved aortic homograft can be inserted to bridge the defect caused by excision of the involved segment. The graft is particularly helpful where the coarctation is located considerably below the origin of the subclavian artery. There are certain disadvantages attendant upon the selection of either of the latter two alternatives, however. Although the subclavian artery may appear to be as large as the proximal aorta, of which it is really a continuation, in approximately one-half the cases in which this procedure is used, the arterial blood pressure fails to fall to normal levels. The use of the homograft carries with it the serious fact that the ultimate fate of these grafts is as yet unknown—and evidence is beginning to accumulate which suggests that they may not be well tolerated over a long period of time. Nevertheless, the modern surgeon performing this operation should have a preserved aortic homograft available for use in those patients who cannot otherwise be operated upon successfully.

Although catastrophic hemorrhage is always a possibility when one is performing this operation, it is most unlikely to occur if all possible safeguards have been utilized throughout the operation. Actually, the technical details are not difficult to master. Every effort should be made to achieve the largest possible lumen. Since the shorter the segment of the aorta excised the more easily performed is the anastomosis, there is a tendency to excise an inadequate length of aorta in coarctations which taper away from the narrowest point. The aorta is more elastic in children, and for this reason it is desirable to perform the operation as early as possible after the age of eight or nine years.

If in the immediate postoperative period the blood pressure in the legs is higher than that in the arms, and if the patient has good, bounding pulses in his feet, it may be anticipated that the brachial arterial blood pressure will fall to normal levels over the course of the next two to three weeks. On the other hand, if postoperatively the blood pressure in the legs is equal to or less than the blood pressure in the arms, an adequate sized lumen at the point of anastomosis has probably not been secured and the blood pressure will probably not fall entirely to normal levels.

TETRALOGY OF FALLOT

When Blalock successfully applied palliative surgery to this example of cyanotic heart disease eight years ago, a great step forward in the progress of cardiac surgery was realized. We like to think of the over-all management of this condition as one which requires genuine teamwork. To be certain that the diagnosis is truly that of the tetralogy of Fallot and not one of the several examples of cyanotic heart disease in which surgery is currently inefficacious, the cardiologist, the radiologist, and the surgeon must cooperate as a well-organized team. The diagnosis must be established preoperatively by the physical findings, by cardiac catheterization and by angiocardiography. It is usually not possible to gain much additional information which will aid in diagnosis after the chest has been opened.

FACTS ABOUT TETRALOGY OF FALLOT

1. *Life Expectancy*: Uncommonly survive childhood.
2. *Cause of Death*: Heart failure, embolic phenomena, etc.
3. *Diagnosis*: Physical findings by competent cardiologist, angiocardiography for septal defect, premature filling of aorta, and late visualization of lung vasculature; cardiac catheterization reveals the abnormal oxygen concentrations and a lowered pulmonary arterial pressure.
4. *Optimal Age for Operation*: Eight to puberty, earlier if imperative.
5. *Surgical Procedure*: Anastomosis of subclavian artery to pulmonary artery (Blalock) or anastomosis of aorta to pulmonary artery (Potts). Operative mortality 10-15 per cent.

It should always be kept in mind that the surgical therapy of this condition is palliative in that serious cardiac defects still remain. If one performs an extracardiac shunt, as in the Blalock or the Potts' procedures, he actually adds a fifth defect to the pre-existing four defects which form the tetralogy of Fallot. If a direct attack has been made upon the stenosed pulmonic outflow tract, on the other hand, the child has three remaining defects instead of the original four. Actually, the majority of these pulmonic stenoses—the one of the four defects the correction of which renders surgical therapy efficacious—are not amenable to direct attack at this time. Nevertheless, in the future, under direct vision in a bloodless heart, it may be possible to attack these lesions and other lesions of the tetralogy more efficiently.

PURE PULMONIC STENOSIS

Isolated pulmonic stenosis is a rare condition, but it is one which is readily amenable to successful surgical attack through the wall of the right ventricle. Since there is no right to left shunt, these patients are not cyanotic, except perhaps in late heart failure. The defect is usually in the pulmonic valve itself and consists of an obstruction to the outflow of blood from the right ventricle. Cardiac catheterization reveals an increased pressure gradient between the lumen of the right ventricle and the pulmonary artery. That is, the pressure in the right ventricle may be normal or elevated but the pressure in the pulmonary artery will be relatively much lower than normal (as compared with the right ventricle). For a time the hypertrophy of the right ventricle can compensate and produce an adequate cardiac output through the stenosed pulmonic valve. Eventually, however, the heart will fail. Pulmonary valvulotomy has been developed with much success by Brock of London. The operation is not excessively difficult and the results are usually good if an adequate lumen has been produced in the stenosed pulmonic valve. It is instructive to repeat the cardiac catheterization some months following the pulmonary valvulotomy to ascertain whether or not the normal pressure relationships between the right ventricle and the pulmonary artery have been produced.

FACTS ABOUT "PURE" PULMONIC STENOSIS

1. *Life Expectancy*: Few reach adult life.
2. *Cause of Death*: Right heart failure.
3. *Diagnosis*: Diminished exercise tolerance. Murmur and right ventricular enlargement without cyanosis. Angiocardiography reveals delayed filling of pulmonary vessels. Catheterization increased pressure gradient between right ventricle and pulmonary artery with normal oxygen values in the right heart and pulmonary artery.
4. *Operative Procedure*: Direct attack upon the stenotic pulmonic valve through the wall of the right ventricle.
5. *Results*: Good if valve is adequately enlarged.

VASCULAR COMPRESSION OF THE TRACHEA AND ESOPHAGUS

In infants and children who have difficulty in swallowing and in whom wheezing is noted, indicating trachial or major bronchial obstruction, the presence of vascular anomalies should at least be considered. Roentgenogram examination may reveal that a barium column in the esophagus is compressed, or it may reveal compression of the trachea, which can be further examined with bronchoscopy. Angiocardiography may reveal the location and perhaps the identity of the offending vessel. If the presence of a constricting vessel is established or seriously suspected, it can usually be successfully divided and the compression relieved. One of the anomalies which is of particular interest consists of a double aortic arch with the trachea and/or esophagus compressed between the two rings, the result of defective embryologic development. Commonly the diameter of one of the two aortic arches is less than that of the other and under these circumstances the smaller arch is divided and the ends ligated or oversewn.

FACTS ABOUT VASCULAR ANOMALIES WHICH COMPRESS TRACHEA AND ESOPHAGUS

1. *Diagnosis*: Dysphagia, wheezing, repeated respiratory infections in infancy and childhood. X-ray with barium swallow reveals esophageal compression. Tracheal involvement may be identified.
2. *Examples of Anomalous Vessels*: Double aortic arch, right subclavian arising from left aortic arch, or ligamentum arteriosum compressing pulmonary artery against trachea in presence of right aortic arch.
3. *Operative Procedure*: Division of offending vascular structure. In presence of double aortic arch, the smaller one is divided.

MITRAL STENOSIS

Few heart operations have so fired the imagination of cardiologists as has the successful application of valvulotomy to mitral stenosis. This previously hopeless condition is now capable of total or almost total correction in a considerable percentage of the patients so afflicted. Furthermore, the mortality of the operative procedure itself has been reduced to approximately ten to fifteen per cent in experienced hands.

FACTS ABOUT ACQUIRED MITRAL STENOSIS

1. *Indications for Operation*: Significant symptoms in the absence of refractory right heart failure, severe mitral regurgitation, advanced aortic valvular disease, or persistent rheumatic activity.
2. *Operative Procedure*: Mitral valve is approached through left auricular appendage and the fused commissures are either torn ("fractured") with the finger or are cut with a special curved knife. The finger fracture, if applicable in the particular case, can be executed more safely than can the commissures be cut with the knife.

Sir Lauder Brunton first suggested surgical correction for this condition in 1902. Not many years later Pribram and Doyen separately attempted this operation but without success. In 1925 Graham and Allen also incised the mitral cusps, as did Cutler. However, most of these procedures were done directly upon the cusp itself. It was not until about 1945 that Bailey and his associates, and later Harkins, suggested that the stenosed valve be divided along the fused commissures so as to avoid the fatal regurgitation produced by the older operative procedures upon the cusps themselves. This idea was successfully applied and the large mortality which accompanied the first few operations in desperately ill patients was shortly reduced to an acceptable figure.

As with any recently developed operation which is being so widely applied, there exist great differences of opinion as to the indications for, and the timing of, surgical intervention. There are those who advocate operation upon any patient who has a diastolic mitral murmur which can be considered indicative of mitral stenosis, in the absence of significant regurgitation. There are others who insist that this operation should be reserved for patients who are incapacitated by their disease. We have adopted a middle-of-the-road policy and believe that these patients should be operated upon when they have definite symptoms due to the mitral stenosis. Patients who are in the third decade of life appear to be particularly able to withstand the operation, but we have operated successfully upon one woman who was fifty-four years of age. This particular patient, whom we were reluctant to operate upon at all, was completely incapacitated by her disease before the operation. Although at complete bed rest, she required constant mercurials, digitalis, and low salt diet. At the present time, approximately seven months later, she drives her own car and is able to be about the city. She still has a diminished exercise tolerance, but she and we are more than pleased with the result.

CONSTRICTIVE PERICARDITIS

The etiology in this condition has been subject of much debate over a period of many years. We are acquainted with a recent case in which there first appeared a pericardial effusion from which was cultured the tuberculosis organism. During the subsequent few weeks the pericardium thickened, as the effusion subsided, and constrictive pericarditis was produced. This example represents one extreme of the problem, a situation in which the etiologic agent was almost certainly that of tuberculosis. On the other hand, in at least one-half of the cases no definite etiologic agent can ever be demonstrated.

FACTS ABOUT CONSTRICTIVE PERICARDITIS

1. *Etiology:* Tuberculosis occasionally demonstrated.
2. *Diagnosis:* Signs of cardiac compression such as "small quiet heart", narrowed pulse pressure, increased venous pressure, ascites, and an enlarged liver. X-ray may reveal calcification in the pericardium.
3. *Operative Procedure:* Decortication of the heart. Hazardous unless wide exposure is first secured. Cautious dissection.
4. *Postoperative Care:* Limited activity for three months.

The presenting signs and symptoms in this condition are essentially those of heart failure due to compression of the heart by the sclerosed pericardium which may be extensively calcified. On fluoroscopy the heart appears small and the excursions are significantly reduced in cardiac systole and diastole. Calcium may be observed in the pericardium as a dancing shadow synchronous with the heart beat. Venous pressure is increased and ascites and an enlarged liver are frequently present. The systolic blood pressure may be lowered and the pulse pressure is frequently narrowed.

Various types of procedure have been applied to this operation, but during the last decade there has been general agreement in the procedure of cardiac decortication, that is, in the excision of the adherent pericardium. One point of disagreement among surgeons is the amount of the pericardium which should be excised. In poor risk patients, it may be prudent to enter the left chest and to excise only the pericardium over the left ventricle and over a portion of the right ventricle. It is considered to be particularly important to carry the dissection down to the pulmonary veins. However, the anticipated improvement is not always observed following a limited resection and, in the writers' opinion, the cardiac decortication should be as extensive as possible. This wide excision can best be done by a long transsternal incision through the fifth interspace, which, of course, opens both pleural cavities. This extensive exposure permits reasonably safe dissection of the adherent pericardium from the right side of the heart under direct vision. The particular hazard in this operation is that the pericardium may be so thick and the wall of the ventricle (or auricle) so thin that one can easily enter the chamber of the heart and, unless exposure is liberal, one may not be able to control the hemorrhage.

The results of the operation are generally gratifying if the dissection has been sufficiently extensive. We believe that these patients should be kept on a regime of limited activity for at least three months following the operation, in that a prolonged constriction of the heart frequently results in considerable thinning and atrophy of the walls of the ventricles, and sudden unaccustomed activity has been thought to have precipitated acute cardiac dilatation and death.

PULMONARY ARTERIOVENOUS FISTULAS

If this process involves only one lobe of the lung, or even one lung, it can usually be successfully managed by excision of that portion of the lung. On the other hand, these lesions are at times multiple and one may be faced with the very serious consideration of excising pulmonary tissue from both lungs. When the lesions are multiple, it is not always possible totally to excise the involved areas. When these shunts are large the patient exhibits cyanosis because pulmonary arterial blood is poured directly into the pulmonary veins without first having been oxygenated in the pulmonary capillary bed. In the absence of cyanosis, the diagnosis frequently follows the finding of a mass in the lung field on a routine chest roentgenogram. If the identity of the mass is suspected, an angiocardiogram may show the involved portion of the pulmonary vascular tree quite satisfactorily. When a mass has been visualized but its identity is in question, the operator must at times be careful that the mass is not overlooked, for, since the operator is anticipating a solid mass, the soft vascular enlargement may escape detection when the lobe is actually in the operator's hand, as was once the experience of one of the writers. The identity of the mass visualized on roentgenogram was not suspected preoperatively and at operation it was some time before it was appreciated that a soft vascular mass was indeed the mass seen on the roentgram.

CONDITIONS IN WHICH OPERATION IS FREQUENTLY SUCCESSFUL

AORTIC STENOSIS

Aortic stenosis is listed in this group because thus far a considerable number of patients have been operated upon but only a comparatively few of them have done well. Nevertheless, it is the ones operated upon most recently who have done well, and there is no reason to believe that in the future the surgical treatment of this condition will not be routinely effective.

ARTERIOVENOUS FISTULAS OF THE GREAT VESSELS ADJACENT TO THE HEART

The basic pathology in this condition is similar to that encountered in the management of peripheral arteriovenous fistulas, with the significant exception that one is dealing with large vessels in the neighborhood of the heart, and it is much more difficult to isolate and expose the fistula, not to mention the difficulty in controlling hemorrhage should it occur. Many of these lesions, frequently the result of gunshot wounds, have been managed successfully, but they present special problems and the outcome is not always satisfactory.

INTERATRIAL SEPTAL DEFECTS

During recent months interauricular septal defects have been successfully closed in a number of centers. When the presence of this lesion is suspected from physical examination, an angiocardiogram and cardiac catheterization (the latter with measurements of pressures and with oxygen analyses) usually serve to establish the diagnosis. Surgical closure of the defect has been effected in several ways by different surgical groups. One group has simply inverted the wall of the auricle with the auricular appendage and pulled it through the defect. This of course diminishes the size of the auricle and there is some danger that the entrance of the pulmonary veins may be partially blocked by this procedure. It is probably fair to say that this particular maneuver will not be long utilized. A method of closure which has been employed more recently has been direct suture of the defect, or defects, since the interauricular septum may present several openings. Perhaps the most successful series yet reported is that presented by Gross, who has utilized a funnel of rubber (a "rubber well") whose bottom is sutured to the wall of the auricle. The blood from the auricle is then allowed to rise as far in the funnel as the auricular pressure will push it, appropriate transfusions being made. The examining finger is then passed down through the column of blood in the rubber well, through the auricular opening, and the interauricular septal defect is palpated and its extent explored. If the defect is considered to be one which is amenable to successful closure by direct suturing, the suture is passed by the same route and the closure is effected under guidance with the palpating finger. Some defects are too large for successful closure by simple suture and in these there is considerable interest in the use of some plastic material as a prothesis, the prothesis being sutured around the edges of the defect. A point of particular interest is that in those defects which are close to the auriculoventricular conduction bundle, the placing of sutures has been attended with a great mortality rate due to ventricular fibrillation.

As soon as the pump-oxygenator apparatus is perfected so that the chambers of the heart can be operated upon in a bloodless field under direct vision, such defects as the interauricular and interventricular septal defects should be amenable to successful surgery. There is good reason to believe that dependable equipment will soon be available for routine use in human beings, as, indeed, it has already been successfully applied in several cases.

ANEURYSMS OF THE THORACIC AND ABDOMINAL AORTA

The possibility of successful surgical management of large aneurysms has fired the imagination of surgeons for centuries. The history of the various operations utilized for this condition is a fascinating one. Let it suffice to state here that ligation, wiring, and wrapping with cellophane have all proved ineffective. During the last two years considerable interest has been stimulated in the successful excision of aneurysms, with suture of the neck of saccular aneurysms, and with the use of an arterial homograft to bridge the gap where a portion of the aorta itself must be excised. The use of venous grafts is rapidly being abandoned.

FACTS ABOUT ANEURYSMS OF AORTA

1. *Etiology*: Syphilis in the thorax, syphilis in the abdomen, arteriosclerosis.
2. *Diagnosis*: Compression symptoms from adjacent structures. X-ray shows mass, possibly with ring of calcification. Angiogram reveals vascular nature of mass.
3. *Current Operative Procedures*: If saccular, divide neck and oversew stump; if fusiform and below renal arteries, excise and insert aortic homograph. Follow-ups short. Proximal ligation, wiring or cellophane wrapping unsatisfactory.

It is as yet too early to predict what will happen to the aortas from which aneurysms have actually been excised or to the aortic homographs which have been inserted. However, the fact remains that the aorta can be successfully sutured under these conditions, this not having been previously realized. In general, thoracic aneurysms are due to syphilis, whereas abdominal aneurysms are due to arteriosclerosis. Since syphilis has been brought under reasonably effective control, syphilitic aneurysms are less frequent and the relative incidence of abdominal aneurysms has been increasing.

CONDITIONS IN WHICH OPERATION IS NOT COMMONLY SUCCESSFUL AT THIS TIME

MITRAL INSUFFICIENCY

A large amount of ingenious thought has been expended in an effort to devise successful surgical approaches to this condition. Thus far, however, the results have not been conspicuously successful. Among the measures which have been employed are fascial slings which are threaded through the wall of the heart on a long needle and are placed in such a manner as to partially occlude the incompetent mitral opening during ventricular systole. This would certainly appear to be a condition which can be successfully handled once it is possible to operate inside the heart under direct vision in a bloodless field.

AORTIC INSUFFICIENCY

This defect also has yet to be successfully overcome. It is true that Hufnagel has utilized a plastic ball valve which he inserts as a segment of the aorta. This procedure has been utilized in a number of human beings, but no long-term follow-up is yet available. It is difficult to believe that such a prosthesis will be well tolerated by the aorta over a long period of time.

CORONARY *INSUFFICIENCY*

It is not surprising that surgeons have for many years utilized various methods, generally without success, to increase the coronary circulation in the presence of inadequate blood flow to the myocardium. Perhaps the most widely used procedure in the past has been that of the introduction of an iodinated powder into the pericardium for the purpose of sclerosing the pericardium with obliteration of the pericardial sac, in the hope that vessels would grow directly across from the pericardium into the myocardium and thus enhance the blood supply of the latter. Occasional sporadic reports still claim success with this procedure, but the concensus among critical persons is that this procedure has now had a fair trial and has not proved successful. Others have implanted a systemic artery in the myocardium, for example, the internal mammary artery, in the hope that it would somehow ingraft itself in the myocardium and additional blood supply would be afforded in this manner. This too has proved a failure. The most recent procedure, advocated by Beck and utilized fairly extensively by Bailey, consists of anastomosing the coronary sinus to the aorta by means of a vein graft. The experimental background for this was that in dogs it was found that, if the coronary sinus were ligated near the auricle, considerable retrograde flow could be produced from the venous side to the arterial side of the coronary circulation. Bailey has reported some rather striking results following the use of this technic, but his follow-up is as yet too short to permit final evaluation. It is technically a difficult operation to accomplish.

ADDITIONAL MISCELLANEOUS CONDITIONS

There remain numerous other conditions which occupy the thoughts of the cardiac surgeon and which will probably be successfully managed at some time in the future. Among these are transposition of the pulmonary veins, transposition of the aorta and pulmonary artery, Lutenbacher's syndrome, Eisenmenger's complex, a common ventricle, the fused heart of Siamese twins, and other pathologic entities. Actually, almost every conceivable defect or combination of defects has been encountered in congenital heart disease.

THE FUTURE OF CARDIAC SURGERY

One would be rash indeed to place any definite limitations upon the success to which the cardiac surgeon may aspire. As intimated previously, it is now apparent the time is not too far off when successful by-passing of the heart will be possible. When this can be done with reasonable safety, virtually every anatomical defect should be amenable to successful surgical attack.

SUMMARY

A brief survey of the field of cardiovascular surgery has been presented. Many operations which are commonly and routinely performed on the heart and great vessels enjoy a success which compares favorably with that of most other operations in general surgery. Certain operations which are not routinely successful at the present time may be expected to become so in the near future. Finally, operations which are not commonly successful at the present time should become so as soon as it is possible to operate inside the heart under direct vision in a bloodless field. The pump-oxygenator apparatus required for such exposure has been used with success in many dogs and in a few patients.

Syndrome Resembling Disseminated Lupus Occurring During Apresoline Therapy

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A RECENT ADDITION to the anti-hypertensive armamentarium has been 1-hydrazinophthalazine (apresoline).[1] Reactions to the drug have been observed, such as severe headaches, tachycardia, dizziness, weakness, nausea, and vomiting. Hilker[2] et al noted a high incidence of toxic effects from this drug in 100 patients, but all reactions were generally transient. Kaufman[3] discussed a case of pancytopenia following administration of hydralazine (apresoline) for seven months. Laurence[4] et al reported an instance of bladder paralysis following administration of apresoline. Goldstein[5] et al had previously observed bladder disturbances following the use of this drug. Recently[6] a case of acute psychosis as a result of hydralazine overdosage in a patient with hypertension was reported.

This report suggests the role apresoline may play in causing a syndrome suggesting lupus erythematosis disseminatus: serious membrane effusion—pericardial, pleural and peritoneal; fever, arthralgia, leukopenia, and anemia. Duston, Taylor, Corcoran, and Page have recently reported 13 instances of this syndrome.[7] This present case, presented in detail, was included in the Cleveland Clinic report as Case No. 3.

CASE REPORT: L. H., a 59-year-old white male was originally seen in August, 1951. He had a longstanding essential hypertension, but was virtually asymptomatic. His blood pressure registered 240/140 in both arms. Funduscopic examination revealed grade hypertensive changes (Keith-Waggoner classification). There was definite cardiac hypertrophy on the chest x-ray. The electrocardiogram revealed a left heart strain pattern. There was a mild anemia present. The blood urea was within normal limits. The urinalysis showed 3-plus albuminuria with red cells, white cells, and casts present on microscopic examination. The patient was referred to the Cleveland Clinic. There, after thorough studies were performed under the direction of Dr. Robert Taylor, he was started on hydralazine.

Over the month, the dosage was gradually increased to a total of 800 mgm. daily. The clinical response was gratifying. The level of the blood pressure declined to an average of 150/90-100. The retinal changes regressed to a bare grade II. The abnormal T waves disappeared on the electrocardiogram. The cardiac silhouette decreased almost to normal size. There was a reduction of albuminuria and of formed elements in the urine.

In January, 1953, the patient developed an upper respiratory infection, from which he promptly recovered. After this he fatigued easily and suffered from insidiously increasing malaise. During the next four months two other episodes of upper respiratory infection occurred. These consisted of chest discomfort, fever, cough, and sore throat. About March 15, 1953, the hands became swollen, painful, and tender to such a point that the patient avoided shaking hands. There was spindling about the proximal interphalangeal joints; the hands could not be fully closed; there was no redness or heat present. These symptoms continued unabated. On March 30 left chest pain appeared, aggravated by deep breathing or coughing. A low grade fever developed, which steadily increased to daily peaks of 102° - 103°. The patient presented himself at our office on April 16. A chest x-ray at that time showed a small left pleural effusion surmounted by a patch of pneumonitis. Hospitalization was advised, but was postponed three days by the patient because of urgent business matters.

The patient was admitted to the Mississippi Baptist Hospital April 19. He was found to be quite toxic, pale, slightly cyanotic, and definitely orthopneic. The blood pressure was 155/104, the temperature was 101.8°, the respirations were 18 per minute, the pulse was 92. The neck veins were slightly distended. Funduscopic examination revealed an early grade II hypertension. There was dullness to percussion, with diminished breath sounds and fremitus over the left chest posteriorly. The heart border was slightly enlarged to the left; otherwise the cardiac examination was not remarkable. The liver edge was palpated one fingerbreadth below the right costal margin; firm, smooth, and slightly tender. The hands were found to be tensely swollen and pale. There was spindling about the proximal interphalangeal joints, but no redness or heat was noted. The appearance suggested rheumatoid arthritis. The remainder of the physical examination was not remarkable.

The specific gravity of the admission urinalysis was 1.008; there were 6-8 white cells per high power field. One plus albumin was present. Otherwise the specimen was normal. The hemoglobin was 10 grams, the hematocrit 33 volume per cent; the red cells numbered 3.3 million per cmm. The white cell count was 4,300 per cmm. distributed as 67 per cent polymorphonuclears, 29 per cent lymphocytes, 2 stab cells, 1 monocyte, and 1 eosinophil. The sedimentation rate was 50 mms. in one hour. The chest x-ray showed an increased accumulation of fluid in the left pleural cavity over that previously seen. The cardiac shadow was also somewhat larger. The venous pressure in the right anti-cubital vein was 12 cm. The arm to tongue circulation time was 20 seconds (calcium gluconate). The electrocardiogram revealed diphasic T waves in all leads.

A first strength tuberculin test was negative. Sputum examinations and cultures were later reported as negative for acid-fast bacilli and fungi. Examinations of stools were consistently negative for occult blood. The blood creatinine was 1.6 mgm. per cent. The urea nitrogen was 25.6 mgm. per cent. The total proteins were 5.88 grams per cent with 3.43 grams of albumin and 2.45 grams of globulin, the albumin/globulin ration being 1.4/1. A Kline test was negative, as were agglutinations for febrile diseases. X-rays of the right hand revealed mininal hypertrophic arthritis with a few cystic changes present at the proximal aspect of the middle phalanges of the third and fourth fingers. These changes the radiologist considered non-specific.

The patient was given 300,000 units of penicillin and 0.5 grams of streptomycin intramuscularly twice daily and 10 grains of aspirin every 4 hours while awake. Neither his temperature nor his clinical course was affected in the slightest. The temperature continued to fluctuate from 100° to 102° daily. The apresoline was continued, with the blood pressure averaging 120-140/70-90.

By May 22 there were unquestionable physical, electrocardiographic and fluoroscopic evidences of a large pericardial effusion, with a marked increase in the fluid accumulation in the left chest. The patient was quite uncomfortable and orthopneic. 1200 cc. of fluid were withdrawn from the left pleural cavity by Dr. Lee Reid; on May 23 another 800 cc. were aspirated. 250 cc. of fluid were removed from the pericardial sac on May 23 and 100 cc. on May 26. The fluid was straw colored and slightly cloudy. Microscopic and Papanicalou examinations and bacteriologic were unrevealing.

Although the patient was able to breathe more easily following the aspirations, he developed abdominal distention and finally obstipation. Auscultation revealed a silent abdomen. A scout film of the abdomen on May 26 revealed a low grade paralytic ileus. Another chest x-ray showed a small accumulation of fluid on the right, with left pleural and pericardial effusions. Two attempts to demonstrate the LE factor in peripheral blood were negative.

It occurred to us that this phenomenon of fever, anemia, arthritis, and polyserositis with leukopenia might possibly represent a toxic effect of the apresoline. The drug was discontinued. The antibiotics were stopped. The patient was given 500 cc. of fresh whole blood and on May 26 was given 50 mgm. of repository ACTH daily. A low salt diet was prescribed, with one gram of potassium chloride to be taken after each meal.

There was a prompt defervescence and subsidence of symptoms, with a marked feeling of well being by the patient. The paralytic ileus abated in 24 hours. The arthralgia and swelling of the hands gradually disappeared over a four-day interval. On daily physical examination there was obvious clearing of fluid from the chest cavities. The blood pressure remained stabilized. By May 29 an x-ray of the chest revealed marked improvement. There was no fluid in the right pleural cavity, only a slight amount in the left. The heart size had definitely diminished. At this time the hemoglobin was 12 grams, the hematocrit 38 volumes per cent. The red cells numbered 4.21 million per cmm., the white cells 15,100. The blood smear revealed 90 per cent polymorphonuclear forms with 5 per cent monocytes. The sedimentation rate was 54 mms. in one hour.

The ACTH dosage was reduced to 25 mgs. per day and was discontinued on May 31. The patient was clinically and subjectively clear of all abnormal findings on May 31. He was dismissed from the hospital that day.

The patient was again seen by Dr. Robert Taylor in Cleveland during June, 1953. Dr. Taylor confirmed our impression of apresoline sensitivity. Giving the patient even small doses of the drug resulted in a prompt decline in blood values and the reappearance of fever. The patient was placed on nitroprusside for his hypertension which had returned, but was unable to tolerate this drug. At present his hypertension is well controlled by 400 mgm. of apresoline daily and 12.5 mgm. of cortisone orally twice daily. The cortisone apparently suppresses the untoward effects of the apresoline.

COMMENT

According to information supplied by the manufacturer and that obtained by personal communication with Dr. Robert Taylor, patients taking large amounts of apresoline over a long period of time may develop a syndrome superficially resembling disseminated lupus. The present case presented many features of lupus: fever, arthralgia, pleuritis, pericarditis, peritonitis (producing the brief period of paralytic ileus), leukopenia, and anemia. The failure to develop increased albuminuria and formed elements in the urine during the acute phase, the age (59) and sex (male) of the patient, the failure to demonstrate the L. E. factor, and the type of lung involvement found, are unusual in acute disseminated lupus. That this syndrome is separate and distinct from lupus has been well shown by Dustan[7] et al. The prompt subsidence of the symptoms and signs following ACTH administration was most dramatic.

Clinicians should be alert to the possible development of this syndrome during apresoline therapy.

SUMMARY

A case reported of a syndrome superficially resembling disseminated lupus developing after prolonged administration of large amounts of apresoline; the L. E. factor could not be demonstrated. There was a prompt clinical remission upon discontinuance of apresoline and administration of ACTH. Clinicians should be alert to the possible development of this syndrome during apresoline therapy.

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The Development of a Program for Uniform Medical and Surgical Care in Disaster

(Introduction to the symposium on emergency medical and surgical care presented by the committee on Emergency Medical Service of the Mississippi State Medical Association, Lawrence W. Long, M.D., Chairman.)

We believe in uniform definitive standardized medical care in cases of a disaster. Therefore our committee of the State Medical Association has planned a campaign aimed at bringing this about. An attempt is being made to present practical solutions for problems that arise in the general field of medicine and surgery when a disaster strikes. Many of these problems are ones that we all are confronted with in our everyday contact with our individual patients and their own personal "disasters". We must all remember that in case of a major disaster that specialists become regular practitioners to render aid to the injured and dying whose needs may well be outside the field of specialization of the physician. We might all well learn the part that we may be called on to treat injured people who are not injured in a particular part that falls within our specialty. Then the general practitioner may well be the most effective of all physicians in such a time.

We cannot in this symposium cover all points and our aim is to present a short concise working outline so that more people can be given better care in any emergency. We invite your suggestions.

It is our opinion that general medical and surgical emergencies require care now while any such thing as a radiation injury would not require action for a week.

Asphyxia and hemorrhage require immediate action to prevent death followed closely by the treatment of shock. Other emergencies will allow more time for care varying in degree with the nature of the injury. The physican will, of course, decide who needs treatment first in a priority based on common sense and a medical background. He may have to decide not to waste any time on one apparently injured beyond hope of survival. We should try to render the greatest good to the greatest number in a disaster, even though it is contrary to our entire tradition which is to render succor for all who need or ask for it.

We would also request that you plan and organize your city, town or community so that all emergency calls can be responded to by some member of the medical profession at all times. We owe it to our community and to ourselves that no one suffer in an emergency because a physician cannot be found when needed. This can be done in every community and if you have not so organized, then you should do it now.

The following presentation is offered to aid you in crystallizing your thinking.

The Emergency Care and Transportation of Fractures*

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The purpose of the symposium has been to discuss mass trauma under circumstances where ideal treatment would not be available and where only temporary dressings would be applied and the final and more detailed care of the patient would be carried out elsewhere. I will discuss briefly the handling of fractures.

Under the circumstances of severe disaster, such as a train wreck, tornado, explosion or other accident in which there are multiple people injured, the control of pain, hemorrhage and shock is of course of primary importance. This applies in fractures as well as other types of injuries. First of all, the pain can be minimized by giving the patients sedatives intravenously. It must be emphasized that intravenous medication of morphine or some other preparation will give relief in a very short period of time, whereas if this same medication is deposited in the soft tissues or muscles, there may be very little circulation to distribute it and its relief will be very slow in developing and the comfort will not be very great, and at a later date, when the circulation is improved, this will be picked up by the blood stream and the patient may by that time have had a second or third dose of morphine given and will go into a state of depression.

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*One of four treatises comprising the symposium on medical and surgical care presented by the Committee on Emergency Medical Service, sponsored by the Mississippi State Medical Association.

Of course, if bleeding is present this should be immediately controlled, either by direct pressure, a tourniquet, or if necessary tying off the bleeding area or vessel. In cases of compound fractures, it is extremely important to emphasize that no effort should be made to clean up the wound more than superficial cleansing. Gross contaminance should be removed, but detailed cleansing should not be carried out. Sterile dressings should be applied. The protruding bone fragments should not be replaced through the soft tissues. Approximate splinting for the part should be applied, and the patient then sent on for the final treatment at the hospital where the cleansing of the wound and the replacement of the fractured fragments through the opening can be done under operating room sterility which will minimize the possibility of infection, and 300,000 units of penicillin should be administered at once, as well as tetanus and gas gangrene antitoxin, where open wounds are present. Splinting adds enormously to the patient's comfort, and he is forever grateful for this for the trip to the final destination of treatment.

I will start with the upper portion of the spine and go down. In cases of suspicious fractures of the neck, some type of dressing should be placed about the neck that will support the head and prevent rotation of the neck. Probably the most convenient and easily available collar that could be prepared would be to take an ordinary newspaper, open it out wide, and then fold it so that it will be about six inches wide and will be many layers thick. In this fashion, a long piece of paper can be wrapped around the neck in collar fashion so as to support both the chin and the occiput and in this fashion can be tied on with adhesive tape, bandage, cord or anything that may be conveniently handy. This will stabilize the head and minimize the possibility of spinal cord damage in case of disturbance to the cervical vertebrae.

Where cases of fractures of the spine, either dorsal or lumbar, are suspected, the patient should be allowed to remain either on the abdomen or on the back as the victim may be found. It is wise, if possible, to place the patient on a stretcher of some type so as to hyperextend the spine. If the patient is found on the abdomen, then a blanket or pillow can be rolled up and placed beneath the chest so as to arch the back, or the head portion of an ordinary ambulance stretcher may be lifted so as to arch the back of the patient found lying on the abdomen. In case the patient is on the back, then the head rest on the ambulance stretcher should not be lifted. If an improvised stretcher is used, pillows or blanket should be placed beneath the spine so that the hips and the shoulders will be lower than the mid-portion of the back. This minimizes the possibility of spinal cord damage in case of vertebral injury. It is needless to say that such patients should be handled with great care and handled just as little as possible for transportation to a place where they can be evaluated from an x-ray standpoint.

Where a fracture of the pelvis is suspected, the same treatment should be carried out as that of handling a fracture of the spine. In addition, an indwelling catheter should be inserted, as there is frequently a rent in the bladder or some portion of the urinary tract that will allow extravasation of urine, which poses a greater problem than the emergency treatment of the fracture itself. If an indwelling catheter can be inserted, this may prevent serious complication. The fracture of the pelvis can be handled later after the patient has been carried to the proper institution.

In cases of fracture of the upper extremity, either the forearm or arm, safety pins that can be pinned through the sleeve anchoring the extremity to the clothing, holding the forearm across the abdomen or chest and the arm to the side will stabilize the parts sufficiently to add a great deal to the individual's comfort. This of course cannot be done in cases of dislocation of the shoulder. It will be necessary to place some supporting device beneath the arm, such as a pillow or some other means of support, to hold the arm out until proper anesthesia can be given for relaxation and reduction of the dislocation. I do not feel that a dislocation of the shoulder should be reduced until proper x-ray study has been done to see if fracture is associated with this. A Velpeau type of dressing with the arm to the side and the forearm and hand across the abdomen or chest will anchor the extremity quite well, adding enormously to the patient's comfort for the purpose of transportation. A small splint on the forearm that includes one joint above and one joint below the injury should be used. It should be emphasized the importance of including one joint above and one below the injury for proper splinting and proper comfort. Too frequently the patient is seen with a fracture of the mid-forearm splinted by a small board applied from the fracture site down beyond the ends of the fingers, which unfortunately adds more to the patient's grief than to his comfort. One should always be extremely careful about including the elbow in such cases.

In cases of fracture of the lower extremity, starting with the hip region, it is always necessary to stabilize the entire lower extremity, and this must be done by applying a splint if treated under primitive conditions, which can consist of any board that could be tied from the armpit down to the foot. It is needless to state that the bony prominences, such as the rim of the pelvis, the greater trochanter, the outer knee and ankle, should be well padded before such a splint is applied. It is frequently even more comforting to place something between the legs and anchor the two lower extremities together to the board so that it can be even more stable. A bed slat is nearly always available, and such is very convenient in a case of an emergency. If no device is available for application of external bracing, then simply tie the two lower extremities together so that one will splint the other, and in this fashion the patient will have at least some degree of added comfort. Fractures of the thigh should be splinted in identically the same way as those of the hip region. If a Thomas splint is available, this is by far the most convenient and probably the most satisfactory of any temporary splint that one can use, but under circumstances of emergency and severe multiple injuries, it is doubtful if such an appliance would be handy. In fractures below the knee, a splint applied from the upper thigh down to and including the foot, binding the entire extremity to a board or any fixation device is adequate. Tying the legs together of course is again a good procedure.

One of the most convenient and satisfactory dressings for temporary use for that of either the arm or leg (and by the leg, I mean below the knee, including the foot and ankle), a pillow splint is one of the best. Simply lay an ordinary pillow down, crease it down its long axis, and lay the extremity in this; then wrap the pillow around the extremity, wrapping it very snugly with a bandage. This gives a very comfortable dressing, allows the patient to move the extremity without pain, and for a temporary dressing is one of the most satisfactory.

Again I would like to emphasize that the suggestions made here are all for purely temporary purposes and are not for treatment purposes. The first thing in the handling of each of these is the control of shock, hemorrhage, and pain, and splinting of the part has a great deal to do with the control of both pain and shock.

Emergency Resuscitation and Anesthesia in Case of Disaster*

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Life depends primarily on interdependent circulation and respiration. The injured person's well-being depends on an adequately functioning cardio-respiratory system. Anoxia is the most pressing of the immediate serious sequelae of a disaster whether individual or wholesale. Severe anoxia for as short a period as five minutes will produce irreversible cerebral degeneration. Intracranial injury may produce primary apnea due to depression of the respiratory center. Even in the presence of an active respiratory center anoxia may result from pneumothorax, paradoxical respiration due to multiple rib fractures, pulmonary edema, atelectasis, respiratory obstruction from foreign matter or edema, and so forth.

Foreign matter must be removed by suction if immediately available. Positive pressure from any source directed down one nostril will force foreign matter out the other nostril and mouth. A substitute may be immediately made by blowing into one of the tubes of the stethescope.

Obstruction from encroachment on the upper respiratory tract by tissue must be relieved by an oral or nasal airway, endotracheal intubation, or tracheotomy.

Once a patent airway has been established, spontaneous respiration may be entirely adequate. If not, artificial ventilation must be instituted immediately. In an emergency such as under considerable elaborate mechanical devices will most likely not be immediately available. Therefore, simple mechanical methods of ventilation with means always present should be mastered.

The old Schaefer method of prone positive pressure on the lower rib cage caused only 15 per cent of a normal tidal volume and has been supplanted by the Back Pressure-Arm Lift Method. The patient is placed prone with head to one side, chin extended, hands prone near face, elbows at right angles to the body. The operator kneels at the head of and facing the patient, astride the head. Exhalation is the first step, and is effected by applying pressure over the lower angles of the scapulae with the heels of the hands and leaning directly over the hands, thus expelling air from the lungs. As the pressure is released and the operator sits back on his heels, the inspiratory phase begins passively and is augmented by grasping the elbows and pulling upward in the axis of the body. As the elbows are released, expiration begins and is aided by again applying pressure on the back.

This method presupposes an intact rib cage free of fractures, and lungs which fill the pleural cavities. Should fractured ribs, pneumothorax, or hemothorax be present a positive pressure inflation method is necessary such as mouth to mouth or mouth to nose. The operator's vital capacity and that of the patient are about equal. In mouth to mouth ventilation, the nose is closed with the fingers of one hand. The lips are spread with the fingers of the other hand which also hyperextends the head to raise the tongue off the posterior pharyngeal wall. After a deep inspiration, the operator places his partially opened mouth over that of the patient and blows, thus inflating the latter's lungs. On discontinuing blowing, the patient exhales passively. This is repeated fourteen to twenty times per minute. Ventilation is at least 100 per cent of normal, and usually more. Oxygen is more than adequately supplied and carbon dioxide is very adequately eliminated. Of great importance is the fact that an operator can continue this maneuver almost indefinitely without undue fatigue, which is not the case with the external pressure methods.

Mouth-to-mouth respiration is performed by closing the lips with the fingers of the hand that is hyperextending the head and placing the mouth over and around the patient's nose. It is the same as the mouth-to-mouth technique in all other respects.

Where there is a laceration of the lung without an open pneumothorax, a thoracotomy tube must be inserted to allow the air to leave the pleural cavity for relief or prevention of tension pneumothorax. If there is an open pneumothorax without a leak in the lung, an airtight dressing is applied over the wound after full inflation of the lung with positive pressure.

Mechanical respirators may be used as soon as available. Attention to patency of the airway is most important since the mechanical gadgets are made to build up a certain pressure (usually 12 - 15 cm. H_2O) after which the cycle of inflation automatically is terminated and expiration is initiated. Should there be obstruction, this pressure is reached without the lungs being inflated. Thus, the gadget cycles rapidly without actually breathing for the patient.

The best mechanical ventilator is an anesthetic machine. Rhythmic compression of the breathing bag inflates the lungs.

Spontaneously ventilating patients with respiratory or circulatory embarrassment should be the recipients of oxygen therapy through a nasal catheter in the nasopharynx at 8 - 10 l./mm.

Interstitial pulmonary edema or hemorrhage results from the contusion caused by blasts from bombs or sudden blows to the chest. Hypertonic glucose 50 per cent in doses of 50 - 100 cc. I. V. or serum albumin 1 to 2 units are of benefit under these circumstances by increasing the osmotic pressure of the blood and drawing water back into the vascular tree. The head of the bed should be elevated to aid in the decrease of edema by gravity.

Alveolar pulmonary edema resulting from anoxia should be combatted by tracheobronchial aspiration, hypertonic solutions I. V., restricted fluid intake, head up position, and positive pressure oxygen on inspiration and expiration of the order of 4 -10 cm. H_20.

The circulatory system is usually seriously affected in any acute severe trauma. Shock should be treated along with respiratory distress but not in preference to it. In other words, if facilities and personnel are available both should be treated simultaneously, if not establish respiratory equilibrium first.

The cause of shock may be at least threefold: 1) traumatic or neurogenic, 2) hemorrhagic, 3) cardiac. Hypotension caused by pain should be relieved by morphine intravenously since it will not be picked up from an extravascular depot by a collapsed circulatory system. The dose should be proportionate to size and age. Ordinarily in the adult, gr. ¼ is diluted to 10 cc. with sterile water or saline and given intravenously over a three-minute period. When so given, severe depression is minimal, onset of action is rapid, and duration of action is approximately one-half that given hypodermically. A tag of some type should be attached to the patient recording the medications given, dose, route and time of administration. This will afford those subsequently caring for the patient with valuable information. Opiates should be avoided or minimal in the presence of head injuries. Often intravenous vasopressors will materially benefit shock when used in moderate doses such as 4 mg. Vasoxyl, 15 mg oenethyl, or 10 mg. ephedrine. Blood loss should be stopped and replaced in an amount at least equal to the loss. Until available, however, any intravenous fluid is of some benefit. Plasma is next best to blood. P. V. P., dextran, gelatin, etc., are of temporary benefit, but their deleterious effect on the kidneys is not to be lightly considered.

Shock may be due to cardiac dysfunction. A previously healthy heart may suffer contusion from penetrating or non-penetrating trauma to the chest. Support these patients with oxygen, quinidine or pronestyl, absolute rest, cautious fluid replacement.

Increased intra-mediastinal and intra-pericardial pressure will mechanically prevent an adequate cardiac output. Drainage of these spaces will produce dramatic improvement in the circulatory status.

Intra-arterial blood transfusion is of limited benefit for voluminous blood replacement, but may be life-saving in the initial restoration of circulation. It should be used with and not in place of intravenous transfusion until there is an adequate blood pressure. If the bottle is elevated six feet above the patient, the blood will enter the arterial system until the pressure is approximately normal and then stop. Should the pressure fall subsequently, blood will automatically enter the artery again until the pressure is normal.

In certain instances mechanically decreasing the vascular bed by firmly wrapping the extremities will allow the small blood volume present more adequately to supply the vital organs which cannot withstand anoxia for more than a short period of time. Elevation of the feet at right angles to the body will give a considerable autotransfusion.

Transportation of the patient should always be gentle. Sudden shift in position may throw him into shock. Unconscious patients should be constantly attended to assure an adequate airway. Pillows should not be placed under the head. This will flex the chin on the chest and produce respiratory obstruction. Many a patient is killed by the good intentions of someone placing a pillow under his head to make him "more comfortable." The head should be hyperextended and turned to one side. A patient in shock should be kept flat or in the head-down position. Once shock is corrected, those patients with injuries above the diaphragm should be maintained in a position with the head and upper trunk elevated. This will minimize edema and dyspnea.

Prior to anesthesia emesis should be induced by any means possible. This will empty the stomach, thus preventing the possibility of regurgitation or vomiting, aspiration, and its respiratory sequelae. Levine tube suction will not empty the stomach.

A parasympathetic blocking agent such as atropine gr. 1/100 should be diluted to 10 cc. in sterile water or saline and slowly given intravenously over a three-minute period. Its effect will be maximum in 10 to 15 minutes, at which time anesthesia may be induced.

Critically injured patients in shock require very little in the way of anesthesia, usually. Nerve blocks or infiltration should be used wherever possible since circulation and respiration are least affected thereby. The glaring exception is spinal anesthesia which is very poorly tolerated by the patient in shock.

Where general anesthesia is necessary, the barbiturates should be avoided because they depress both respiration and circulation. Cyclopropane bolsters circulation and is therefore best. Endotracheal intubation will assure a patent airway and prevent aspiration of vomitus.

Intravenous procaine during general anesthesia will help combat cardiac arrythmias and inefficiency in conduction due to irritability from contusion or anoxia. It should be given in doses of 100 to 200 mg. (10-20 cc. 1 per cent solution of novocaine) intermittently as the occasion arises. The patient must be generally anesthetized or convulsions will be produced, probably resulting in death.

Remember: Keep oxygenated blood circulating. All else is secondary.

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Emergency Treatment of Burns, Thermal and Radiation*

THOMAS J. SAFLEY, M. D.
Jackson, Mississippi

It is neither our purpose to enter into any discussion of the relative merits of the closed or open methods of treating burns nor to enter into any learned or detailed dissertation of such treatment. Our sole object is to stimulate interest in the development of a plan of procedure for emergency treatment, suited to the local situation.

Irradiation injuries result from prompt and delayed radiations. Prompt radiations consist of hard penetrating gamma rays and neutrons and last several millionths' of a second. These rays are lethal for a distance of one-half mile.

Delayed radiations are gamma rays and beta particles emitted by the fission products after the explosion. Nearly all these products are in and around the ball of fire which ascends at the rate of two miles per minute. After one and one-half minutes the fission products are so far away that their irradiations are no longer effective. After two minutes it is safe to enter the area and begin evacuation. These gamma rays can deliver a median lethal dose of 450 r to exposed persons as far away from directly under the bomb as 4000 feet. Fifty per cent of this occurs in one second and 80 per cent in ten seconds.

Acute radiation injury in the fulminating form is fatal to seven to ten days. The signs and symptoms of this form are vomiting within twelve hours, with prostration, fever and diarrhea within twenty-four hours. Petechiae and purpura occur in four to five days. Blood studies show a progressive leukopenia and thrombocytopenia. Red blood cells usually remain fairly normal.

The hemorrhagic form occurs in less severely irriadiated persons and death, when it occurs, comes in three to four weeks. Nausea, vomiting. diarrhea and prostration occur in twenty-four hours and last for twenty-four hours. The person is then well for about ten days when epilation. weakness, petechiae, purpura and gastro-intestinal signs appear.

The pancytopenic form is the least severe and death, when it occurs, is in two to four months from aplastic anemia. The above symptoms are mild and fairly easily managed.

The treatment of irradiation injuries resolves itself into a program of supportive therapy with transportation or evacuation to treatment centers delayed as long as possible. The two most important factors in the supportive treatment are adequate blood and chemotherapy, preferably aureomycin. In animal experiments the only survivors of severe irradiation were so treated.

The types of burns encountered will depend entirely on the initiating cause, the distance from the cause and the amount and kind of protection.

The flash of the atomic bomb causes temporary blindness lasting several minutes, and flash burns. Superficial flash burns will occur as far away as two and one-half miles with incapacitating burns occurring as far away as one and one-half miles. The seriousness of flash burns will depend on the amount and type of clothing worn.

The treatment of shock should be the paramount consideration in treating burns. Adequate sedation, the replacement of circulating blood volume and administration of oxygen are the important considerations. Morphine should be administered intravenously initially in all burns, otherwise complete absorption cannot be assured. As soon as the patient's condition has become stabilized the intramuscular or subcutaneous routes may be used.

Blood is the preparation "par excellence" in treating shock. Saline or glucose may be used to expand blood volume temporarily while blood is being prepared. So long as the patient remains in shock or the hematocrit remains above 50 the blood should be continued. Severe burns destroy a great deal of blood and anemia begins earlier despite the increased hematocrit. Also, as an emergency factor in combatting shock, more red cells lessen the anoxia.

Once the patient's condition is stabilized, local care of the burn should be begun. The closed or pressure dressing method will be the one of choice. It becomes so because pain is relieved quicker and immobilization is adequate for whatever transportation may become necessary. Once the burned patient arrives at a fairly permanent station the dressing should be removed and more careful treatment instituted. The choice may then be either closed or open. Before the first dressing is applied, however, gross cleansing should be carried out. By this I mean that clothes, gross dirt, etc., are removed. No débridement should be attempted. In superficial burns of less than ten per cent body surface dressing may not be applied.

Dressings of fine mesh next to wound, bulk for absorption and pressure next, and elastic for pressure on the outside are ideal. Dressings can be greatly simplified if ready prepared ones are bought and cut into different sizes. These ready-prepared ones are made with one side fine mesh so that it is necessary to apply one piece only then wrap it on with a cotton elastic bandage such as Kerlix rolls. Rubber bandages should not be used until the patient has reached the end of his transportation.

In burns of less than twenty per cent body surface fluid and electrolyte balance may be maintained by oral ingestion of a mixture of 3.5 gms. sodium chloride and 1.5 gms. sodium citrate or sodium bicarbonate in each liter of water. This solution should not be given beyond the beginning of diuresis which usually begins in 48 hours. In more severely burned patients intravenous therapy may be necessary. Normal saline and one-sixth molar lactate solution may be given, but during the first 48 to 72 hours the rates of these solutions to blood should not exceed 1 to 1 (1000 cc. blood for each 1000 cc. electrolyte solution).

Plasma expanders such as polyvinyl pyrrolidone are of some value but unless the molecular weight of the particles is exactly right the preparation will be excreted too quickly or retained longer than desired. The solution penetrates the central nervous system poorly also.

Penicillin may be used in non-sensitive patients in whom irradiation has been negligible.

The rule of 9's may be used in the estimation of body surface burned: 9 per cent for head and face, 18 per cent for front of trunk, 18 per cent for lower extremity, and 1 per cent each for neck and perineum. All burns which are dressed should have the estimate of body surface indicated on their record.

There are many laboratory procedures which may be used to estimate the patient's general condition but the most important and easiest is the measurement of urinary output—40 to 50 cc. per hour is an excellent rate.

SUMMARY

Irradiation injuries should be treated with general supportive measures, blood and aureomycin. Burns should be treated with intravenous sedation, oxygen, blood, pressure dressings and electrolyte and fluid replacement. The early administration of adequate high protein diet is essential. The one essential laboratory test is the measurement of urinary output.

The presence of burns should not deter the treatment of other injuries once the patient's general condition has been stabilized.

Were it my province to prepare for the care of patients to be burned in an emergency, whether or not the atom bomb were to be used, I would count three things absolutely essential: 1) blood-collecting bottles, 2) morphine, and 3) aureomycin. I would then insist that every person in the area be typed and wear at all times a permanent tag carrying that type.

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Treatment of Crushing, Lacerating, and Penetrating Wounds*

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Jackson, Mississippi

Sins of omission or commission, later recognized as mistakes, are frequently the most forceful teachers we encounter, leaving lasting impressions that aid in the more efficient care of the same conditions as they arise later. As a result of our debacle at Pearl Harbor and the ever-present threat of atomic warfare, we are now attempting to be prepared to cope with any medical emergency that may arise.

Such a catastrophe at the present time would find us in this state and in our various communities without organized services such as shock teams, and subspecialty surgical teams, such as maxillo-facial teams. The purpose therefore of this paper is to review the traumatic surgical diagnostic and therapeutic principles that deal with the emergency treatment of the injured patient in order that he may be presented to the echelon of definitive treatment in the best possible condition to preserve life and function. Some differences in the types of expected injuries from atomic warfare will be mentioned, drawn from those experiences at Nagasaki and Hiroshima. In the event of such a catastrophe most of the patients would be treated initially in first-aid stations. The minor abrasions, contusions, and lacerations could be treated and discharged at this level after cleansing, débriding, and dressing. All such injuries, however, should be carefully observed for co-existing lesions of major importance, before being discharged. Tetanus antitoxin should be given to all cases in which the skin is broken.

To combat infection which would be more prevalent in atomic casualties because of lowered defense due to the granulocytopenia produced by irradiation, parenteral administration of procaine penicillin should be given. Later aureomycin, terramycin, and antibiotics may be indicated. Treatment of shock by whole blood transfusions should be carried out initially.

NECK AND HEAD:

Crushing injuries to this region will frequently be accompanied by intracranial injury. The patient should be examined thoroughly for signs indicating their presence such as a search for localizing signs, equality of pupils, paralysis, and frequent blood pressure and pulse recordings. In severe head injuries early tracheotomy is frequently indicated. Many of these cases will be accompanied by loss of large segments of integument as of the scalp, face, and neck. The area should be cleansed and prepped as soon as shock has been overcome and the area irrigated and thoroughly débrided; where possible it should be closed. In cases where large segments of skin or tissue are missing sterile pressure dressings should be applied firmly and the patient evacuated to a plastic or maxillo-facial center. Underlying fractures of the skull and cervical vertebrae should be sought. These principles apply to the eye as well as the remainder of the head and the neck.

Perforations of the ear drums may indicate the pressure of severe injury from atomic blast when other symptoms are absent.

Lacerating wounds are treated in the same manner but these are usually amenable to primary suture, depending on the nature and degree of the catastrophe. On many occasions it will be wise to leave the wound open and close it later secondarily.

CHEST:

Serious direct blast effects on the lungs due to atomic explosions are thought to be less numerous than the indirect type caused by collapse of buildings and flying débris. It is anticipated, therefore, that the majority of the chest casualties will consist of the more familiar types of traumatic cases as are seen in civilian life, such as simple contusions and those associated with fractured ribs, pneumothorax, hemothorax, and lung contusions, cardiac penetration, tamponade, and cardiac contusions. The direct air-blast injuries may appear deceptively uninjured early even though serious damage has been done. The main symptoms are pain or oppression beneath the sternum, dyspnea, cough, and hemoptysis. Physical signs may be few. The occurrence of deafness or rupture of the tympanic membranes confirms air-blast exposure. Rest with the head elevated and morphine should be given, and oxygen administered as dyspnea increases.

Pulmonary injury by fire and smoke may also give very few early signs, to be followed by serious pulmonary edema. The symptoms and treatment are similar to those of air blast. To combat superimposed infections penicillin should be given to all patients exhibiting rales or percussion dullness. Dosage of 600,000 to 800,000 units daily should be given prophylactically.

Fractured ribs should be treated by intercostal nerve blocks to relieve pain and prevent pulmonary edema when there is accompanying lung injury. Strapping of the chest except where paradoxical respiration occurs due to 'stove-in-chest' will seldom be necessary. Intrapleural injury producing either tension pneumothorax or hemothorax must be cared for by prompt aspiration or in the more severe cases intercostal closed water-seal drainage may be necessary.

Sucking chest wounds produced by penetrating foreign bodies should be covered with an air-tight dressing and the patient promptly transported. The presence of a foreign body does not necessarily call for immediate removal..

It is rarely necessary to do an open thoracotomy for hemothorax except where the bleeding is coming from an intercostal or other major vessel. These, of course, should be ligated rapidly. The immediate treatment resolves itself into the restoration of pulmonary physiology with treatment of shock, if present, and early transportation to the rear, or definitive treatment area. Administration of antibiotics, tetanus, and gas gangrene antisera apply here as elsewhere.

ABDOMEN AND BACK:

In abdominal contusions, perforations of the stomach or the small or large bowel may occur, rupture of the liver, spleen, and pancreas as well as other abdominal or pelvic viscera. Continued shock or pallor despite blood transfusions with pain radiating to the neck or shoulders may indicate the presence of tears of the spleen or liver, or bleeding from the pancreas, bowel, or retro-peritoneal areas. These patients should be treated for shock and evacuated as soon as possible to a hospital where they may be explored. Penetrating wounds may involve any of the abdominal or pelvic viscera. Once a penetrating wound is observed with any possibility of visceral involvement, the patient should be evacuated to a hospital where laparotomy should be performed. The absence of symptoms should not delay surgery as it is known that six to eight hours may elapse before symptoms arise from perforated lesions of the gastro-intestinal tract. The wound should not be probed.

Injury to the kidney or bladder may be indicated by blood in the urine which should be examined as soon as possible. Co-existing injuries such as fracture of the pelvis may indicate the presence of injury to the bladder. Anuria may be due to reflex shut-down or to nerve injuries. These cases should be evacuated to a hospital where x-ray studies of the kidneys and the bladder may be done, as well as cystoscopy.

Rectal examination should always be done. Bleeding from the rectum may indicate perforation of the large bowel or rectum. Bloody urine may indicate perineal injury to the urethra. These cases should be transported to a nearby hospital for treatment. Soft tissue wounds of the extremities should be treated the same as those elsewhere. The bleeding must be controlled, observed for fractures, and injury to the vessels, splinting for transportation. In crushing injuries to the extremities with or without fracture sympathetic block, may be necessary to alleviate vascular spasm and prevent gangrene, as well as to alleviate pain. Hands and feet with tendon injuries should be thoroughly cleansed, sterile dressings applied, and splinted in a position of function before being evacuated.

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President's Address*

M. Q. EWING
Amory, Miss.

IT HAS BEEN customary that this address outline the progress and predict the future progress of this Association. I wish to depart from that custom, inasmuch as this was included in my report to the House of Delegates. There are far better speakers on this program who will interest you more in this field.

I wish to report to you about Mississippi doctors. I have always respected my fellow doctors and have known a great many physicians, but serving as your president and traveling all over the state I have become acquainted with many whom I otherwise would not have learned to know. This has been an honor, a privilege, and an education. My respect and affection for my fellow Mississippi physicians has grown enormously, and the chief compensation for the labors of the office has been in learning to know and respect so many genuine Mississippi gentlemen.

It has usually been the custom to wait until a good physician has departed this life before saying the many good things you always thought about him, but I do not feel that this is best. We have lost a number of Mississippi doctors by death in the past year, many of them my personal friends, and to mention only two, I will always be happy that I did not wait for J. Rice Williams and Tom Dye to die before I told them of my love and respect. They were both genuine and complete gentlemen who merited the respect of all of us, and deeply and sincerely active in promoting all that is best for Mississippi medicine. Do not wait for your friend to die before you mention his merits and tell him how you feel about him.

On this basis I wish tonight to name to you and publicly to express my thanks to a number of Mississippi doctors who have unselfishly given of their time and energy in promoting the interest of Mississippi medicine. The list is long but not long enough, as I will only list those whose efforts have been outstanding. I wish you to know who has really worked for your Association that you too may express to them your appreciation. The list is necessarily alphabetic and I start with

Temple Ainsworth of Jackson—who has worked well on Medical Education.

W. H. Anderson of Booneville—work on the Journal and aid to committee on nursing.

Lamar Arrington of Meridian—for advice and aid to me on various subjects.

S. L. Bailey of Koscousko—work on Council and in his Councilor's District.

A. V. Beacham of Magnolia—work on Council and nursing program.

Durward Blakey of Clarksdale—for a most excellent job as secretary of his local society and work on veterans committee.

Henry Boswell of Sanatorium—for work on legislative committee and nursing committee and services over the years too numerous to mention.

W. H. Brandon of Clarksdale—for work on Blue Cross.

R. B. Caldwell of Baldwyn—for work on a number of committees and on legislation and Blue Cross.

L. T. Carl of Jackson—for work on planning committee.

C. P. Crenshaw, Jr., of Collins—work on Council and on various committees.

J. P. Culpepper, Jr., of Hattiesburg—for outstanding effort as Delegate to AMA and for public relations work at Hattiesburg.

W. H. Frizell of Brookhaven—for advice and counsel on medical problems.

R. F. Grenfell of Jackson—for work on the American Medical Education Foundation and in public relations on the Jackson medical forum.

Arthur Guyton of Oxford—for heart disease seminar.

Stanley Hill of Corinth—for work on legislation.

John B. Howell of Canton—for work on committees and legislation.

G. S. Hicks of Natchez—for work in his local society.

D. T. Imrie of Vicksburg—for work on committee on Allied Medical Agencies.

S. K. Johnson of Pelahatchie—for steady and continuous work and travel on committee for Rural Health.

W. E. Johnston of Vicksburg—for work on Nursing.

S. S. Kety of Picayune—for work on Veterans' affairs and a good job as secretary of his local society.

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Mr. Rowland Kennedy of Jackson—our most efficient and hard working Executive Secretary.

Lawrence Long of Jackson—for his chairmanship of the committees on Allied Medical Agencies and Emergency Medical Service.

J. F. Lucas of Greenwood—work as Delegate to AMA.

George H. Martin of Vicksburg—outstanding job as chairman of Industrial Health Committee.

Frank Massengill of Brookhaven—for work on legislation.

C. R. McCall of Gulfport—an outstanding job as President-Elect and Planning Committee.

H. H. McClanahan of Columbus—work on Council and Medical Education Committee.

S. S. McNair of Jackson—work on committee on Allied Medical Agencies.

C. B. Mitchell, Jr., of Meridian—for an outstanding job as secretary of his society.

C. M. Murray of Oxford—for a good job as secretary of his local society.

Howard Nelson of Greenwood—a good job as secretary of his local society and on committee of Maternal and Child Health and Welfare.

B. B. O'Mara of Biloxi—for counsel and advice on medical problems.

D. S. Pankratz of University—work on Medical and Education Board and interest in medicine in general.

E. C. Parker of Gulfport—work as chairman of Council and fifty years unselfish service to Mississippi medicine.

C. W. Patterson of Rosedale—work on Council and in his Councilor's district.

V. B. Philpot of Holly Springs—work on nursing and legislation.

W. K. Purks, Vicksburg—for committee work and as secretary of his society.

H. C. Ricks of Jackson—work of Council, on Constitution and By-Laws, Veterans' affairs, Public Relations. Dr. Ricks has given more time and effort to your affairs than any physician in Mississippi during the past year.

T. E. Ross of Hattiesburg—work and travel and effort on Veterans' affairs.

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James G. Thompson of Jackson—work as chairman of Planning Committee, on cancer control, and veterans' affairs, and counsel and advice on medical problems.

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George E. Twente of Jackson—for a most excellent job as constitutional secretary, and untiring energy in work and travel on veterans' affairs, Public Relations, and advice and counsel on medical problems. Dr. Twente is a hard worker.

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R. L. Wyatt of Holly Springs—for work and interest on Rural Health, and other committees.

Raymond B. Zeller of Hazlehurst—for an excellent job as secretary of his local society and interest and work on medical problems in general.

I wish to thank the entire membership of the Issaquena-Sharkey-Warren Medical Society for a most excellent public relations job at the time of the tornado, and the entire membership of the committees on Allied Medical Agencies and on Diseases of the Heart.

This list should be much longer to contain the names of all who have worked. I have shortened the list to those who have worked the most.

Ladies and gentlemen, these are the men who have put out much effort for medical progress in Mississippi in the past year. I am proud to have served with them. I salute them and thank them for you. I am proud to be a Mississippi doctor.

No man can be a pure specialist without being in the strict sense an idiot.—George Bernard Shaw

From a Doctor to a Doctor

J. T. WEEKS, M.D.
Jackson, Miss.

Dear Doctor:

This letter relates a plan which will enable every physician, general practitioner and specialist, to render a greatly needed service by only making a suggestion.

We know all conscientious physicians are constantly searching for ways and methods which will better enable them to contribute to the health and happiness of all people. However, we are today confronted with a widespread and rapidly increasing affection which is causing embarrassment, discomfort and impaired health to many millions of our people and there has been very little the individual physician could do, until recently, to prevent this insidious disorder.

A condition which is seriously affecting millions of our people is an emergency which we should not regard with complacency. The fact that year after year greater and greater numbers of women are plagued with Trichomonas vaginitis, is enough proof that whatever we, as physicians, have been doing about this condition, it has not been enough. We can never win this battle, which is definitely ours, continually failing to make progress. These millions of women need relief now, not sometime in the distant future. There are also those who do not at present have this trouble, who should be quickly advised what to do in an effort to prevent it.

It is estimated that one of every five women in the United States is troubled with Trichomonas vaginitis. Little girls—children and teen age—whose mothers have Trichomonas vaginitis, frequently have the trouble. I have treated as many as four cases in the same family. In my opinion the bathroom is definitely a source of transmittance.

Experience has convinced me there are three principle reasons why the generally accepted plan of treatment which requires frequent office treatments has failed and can never solve this OUR problem.

1. We do not have enough physicians in the United States personally to administer the treatments to all.

2. It is a condition which as a rule does not cause the victim to become acutely ill. The nature and the deception of Trichomonas vaginitis is such that, due to embarrassment and lack of information, only a small percentage of these women ever consult a physician, but in an effort to get mental and physical relief, resort to the use of ineffective and many times harmful preparations.

3. I believe it would be impossible to get more than a small percentage of these ten million women to go to a physician's office and wait their turn for a series of treatments for this condition. However, if in some magic way this could be accomplished it would take 100,000 doctors, each treating 25 patients per day, approximately three months to complete the treatment of ten million women—IMPOSSIBLE.

In addition to all of this, the office treatments are time consuming and disagreeable for the physician, costly and repugnant to the patient. Since the trouble so often recurs again and again it is embarrassing to the doctor, exasperating and discouraging to the patient. Under these circumstances neither the relationship nor the atmosphere between doctor and patient is likely to improve.

I am confident that most physicians will agree, the importance of safe feminine hygiene has been less emphasized by doctors and more misunderstood by women than any other health protective measure. Many women never take a douche. A large percentage of those who try, as best they know to protect themselves, use ineffective and harmful preparations. No doubt these facts are contributing to Trichomonas vaginitis. Only through the support by many doctors of a formula to be used regularly for feminine hygiene which will prevent and relieve Trichomonas vaginitis, plus an honest, frank, and instructive publicity program, can women be given the information they need and richly deserve. By coordinating our efforts, we can now remove a health hazard which has long existed.

The responsibility for advising and disseminating information pertaining to this problem rests squarely upon the shoulders of members of the medical profession. We cannot separate ourselves individually or collectively from this obligation to the public. I am sure that would not be the desire of any conscientious physician.

Quoting from a paper in the March 1950 issue of our State Medical Journal:

> "The experience of many doctors, over a period of several years, has demonstrated that a vaginal

douche with STAT, one teaspoonful of the quart of water, used night and morning for ten days, will, in most cases, free a woman of all clinical symptoms of Trichomonas vaginitis, and the Trichomonas cannot be found in a smear. The continuation of a douche with STAT, once or twice per week, will usually keep her free of the parasite. Doctors are also gratified with results obtained through the use of STAT douches in the treatment of the general run of non-specific vaginitis and cervicitis." M. D., Jackson, Miss.

"STAT, is a formula composed of vegetable oils and glycerine, proportioned and compounded in a manner that, when mixed with water, it forms a soothing emulsion. It contains highly refined oil of pine, vegetable oil, glycerine, camphor and oil of eucalyptus. The use of STAT by women over long periods has proved that it is not irritating and its frequent use does not interfere with the normal vaginal secretion.

"In fairness to the millions of women who are victims of Trichomonas vaginitis, the medical profession may well encourage the use of an effective and harmless feminine hygiene formula which, in addition to its virtue as a vaginal douche for general use, will both relieve and prevent Trichomonas vaginitis. The consistent use of STAT will do this in almost all cases." M. D., Jackson, Miss.

"I have been prescribing STAT for over a year and have found it most satisfactory from a general practitioner's viewpoint.

"STAT, in addition to being an excellent trichomonacide, has proved to be a good all-purpose douche. I have found it effective in many cases of erosive cervicitis. It has been gratifying to see the good results in Trichomonas infections and especially Trichomonas complicating pregnancy. I have repeatedly questioned the patients who have been treated for Trichomonas by other methods, and in almost every instance the opinion was that STAT was much more effective." M. D., Memphis, Tenn.

"Case Report.—Mrs. K. D. G., was first seen on July 25, 1947, and was about seven months pregnant. She gave a history of severe cervicitis caused by Trichomonas infection. She had been treated over a long period of time by her local physician with a well-known powder insufflation and insert at night.

"When examined by me she was badly swollen and irritated with a severe copious irritating discharge loaded with Trichomonas. She was advised to use douches night and morning of STAT, one teaspoonful to a quart of water. This gave her almost immediate relief and on July 30, 1947, her vaginal smear was negative for Trichomonas and she had only a normal amount of vaginal discharge.

"She was delivered on September 13, her episiotomy incision healed perfectly and she was discharged from the hospital five days later in good condition.

"I have closely observed the clinical results obtained through the use of STAT for more than three years.

"As a treatment for the usual discharges, and more especially the severe irritating discharges caused by the Trichomonas infection, I have found STAT most helpful and beneficial. The fact that it can be used often and over a prolonged period without irritation or damage lends itself advantageously in Trichomonas infections where treatment is necessarily a prolonged affair." M. D., Jackson, Miss.

"The following is a case which I had in the office which should prove interesting. Approximately six months ago I had a white female, multipara, referred to me by Doctor R. She complained of a bloody discharge from the vagina, duration approximately three weeks. On physical examination a rather large ulcer was noted on the upper lip of the cervix which I suspected of being malignant. A biopsy was taken and at the same time the patient was instructed to use STAT, in double strength, (two teaspoons to a quart of water), as a douche, b.i.d. The biopsy was negative for malignancy but showed a very heavy Monilia infection. On her return in three weeks for a check up she was entirely clear, no other medication used.

"I have used STAT for three and one-half years with very gratifying results in both regular and double strength." M. D., Meridian, Miss.

Doctors, I have herein presented for your consideration facts which have been accumulated over a period of several years. I became greatly interested in this problem in 1934, and since that time I have devoted much time in work, study, research, experimentation and observation, in an effort to find a practical solution to this constantly broadening problem.

I am well aware of what can now be accomplished by making STAT easily and economically available to all.

I appreciate greatly the prescriptions given by the many physicians who know about STAT. Our great problem, I know you will agree, is to get the information to all women. If you will therefore just write STAT on a prescription blank and tell the patient she can now buy STAT at the drug store, this will help immeasurably to disseminate information.

To those physicians, general practitioners or specialists, who have not prescribed STAT, you can assure your patients they will also be gratified with the cleansing, refreshing and deodorizing effects of STAT.

Most cordially and sincerely,
J. T. Weeks, M.D.

Milk of Calcium Bile*

W. H. BRANDON, M.D., F.A.C.S.
Clarksdale, Miss.

CALCIFIC disease of the gallbladder occurs frequently in the form of mixed calcium stones but milk of calcium bile is a very rare occurrence. Calcification of the gallbladder wall is probably a much later stage in the disease and may be either an incrustation of the mucosa with lime salts or a true infiltration of the wall with lime, called ossification.

Milk of calcium bile may occur as a thick or thin fluid to a more or less paste or chalk-like stone. It may be white or gray in color or if mixed with bile pigment, greenish, yellowish or brownish. In some cases, it has been described as a plastic mass, whitish, yellowish-green color, like kneeding rubber. Study of this substance shows it to consist primarily of amorphus calcium carbonate with traces of calcium phosphate, some cholestrin and frequently, some bile pigment. Quite often there are gallstones, which Aschoff has classified as pure cholestrin stones, pure calcium stones (which are very rare), cholestrin pigment, calcium stones and combination stones.

Most authors consider obstruction of the cystic duct to be necessary for the formation of milk of calcium bile. Bile as secreted by the liver is alkaline but the longer it stays in the gallbladder, the more acid it becomes. This acidification, in the usual gallbladder prevents precipitation of the calcium salts. The bile acids and the carbonic acid make the bile more fluid and act as solvents for the calcium and cholesterol salts. Obstruction of the cystic duct leaves the bile acid at first and there is no precipitation of the calcium salts, but the mucosa of the gallbladder wall has high absorptive powers and absorbs bile, water and water-soluble substances and inorganic salts to a concentration of one-tenth its volume. Stasis, as a result of closure of the cystic duct, leads to an inflamed mucous membrane and empyema. This inflamed mucous membrane excretes an exudate rich in calcium and protein.

This exudate, rich in calcium milk, shows as a dense shadow when x-ray is done without the use of dye. An upper horizontal line may show when x-rayed or fluoroscoped in the standing position, which corresponds with the fluid level. This line may be absent when the gallbladder is completely filled with milk of calcium, bile, or when the contents are thick or hard.

CASE REPORT: L. A. B. Age 62. First seen in March 1952. History of typhoid fever 35 years previous. Recurrent gastro-intestinal symptoms with acute pain in gallbladder area. Postprandial distress. Frequent attacks of pyelitis with dysuria. Very nervous at times. Menopause 15 years earlier. For several years had been a very careful eater. After several bouts of epigastric pain after heavy meals, had acquired an aversion to fatty or rich food, milk, and many vegetables. Clinical examination revealed the patient to be slender, skinny. Skin not jaundiced and conjunctiva not icteric. Physical examination essentially negative except for slight hypertension and considerable tenderness and muscle guarding on pressure in the gallbladder region. X-rays of the gallbladder taken March 1952 after ingestion of dye showed a small fairly round gallbladder which changed little at the second picture or after the fat meal. There seemed to be a stone completely filling the gallbladder. She had recurring attacks of epigastric pain, belching, occasional vomiting, chronic constipation, etc., and about 6 months later on Dec. 1, 1952, we made a flat plate of abdomen, showing identical findings as of March after the dye. She was hospitalized with attacks of acute pain and agreed to gallbladder surgery. The gallbladder was approached by a right paramedian incision and found to be oviform, hard and fixed by some periglandular adhesions. Its shape was that of a black walnut; it was greyish-green in color and filled with a thick viscous, greenish fluid. No stones were found in the cystic common duct. The gallbladder wall had a thick, hard, brittle feeling. The patient made an uneventful recovery and left the hospital on the ninth day.

PATHOLOGICAL EXAM: GROSS PATHOLOGY: Specimen consists of a gallbladder which is 8 cm. in length and 3 cm. in greatest diameter. The lumen of the gallbladder contains a dark bile. The serosa is rather hemorrhagic. The wall is slightly thickened. No stones are found in the gallbladder. The mucosa is velvety.

MICROSCOPIC PATHOLOGY: This gallbladder presents a large amount of hemorrhage. There is a congestion of the blood vessels present and an exudation by polymorphonuclear neutrophils, serum, fibrin, large mononuclear cells, plasma cells and eosinophils. There is considerable fibrosis present.

COMMENTS: There is considerable difference of opinion as to the cause of milk of calcium and calcification of the gallbladder wall. It is generally believed that calcification of the gallbladder wall follows long, chronic inflammatory attacks. Many of the reports of milk of calcium bile show blockage by a stone in the cystic or common duct or a thick putty-like substance which will not empty. Not all cases, however, have had complete blockage of the gallbladder. There was no blockage in the case reported here.

TREATMENT: Calcific disease of the gallbladder may often be asymptomatic. Treatment is surgical, however, for the same reasons as in cholelithiasis and also because of an associated primary malignancy of the gallbladder, in a small percentage of cases.

SUMMARY: 1) Calciferous disease of the gallbladder is relatively rare. 2) The roentgenological differentiations between a large stone in the gallbladder, calciferous disease of the gallbladder wall or milk of calcium bile is frequently difficult. 3) The etiologic background of this disease has been discussed briefly.

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*Presented before the Clarksdale and Six Counties Medical Society, November 11, 1953.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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EDITORIALS

OUR COMMANDMENTS

1. The patient is the most important person in the hospital.

2. The patient is dependent on us; our reputation is dependent on him.

3. The patient is not an interruption of our work —he is our work.

4. The patient does us a favor when he calls; we are not doing him a favor by serving him.

5. The patient is not someone to argue with—but someone to comfort.

6. The patient is a part of our business—not an outsider.

7. The patient is not a cold statistic; he is flesh and blood human being with feelings and emotions like our own.

8. The patient is a person who brings us his illness—it is our duty to justify his faith in us.

9. A patient is deserving of the most courteous and attentive treatment we can give him.

10. Remember always, if people did not become ill, there would be no need for this or any other hospital.

(Courtesy Georgia Hospital Association)

The above-borrowed summary merits the consideration of all hospital personnel. The spirit of love and service indeed should charge the atmosphere of every hospital. The patient shall never be a number; he must be an individual known by his name. If the patient is properly served, the books will balance themselves. Specific drugs for specific diseases are very important, but the heart and the soul oftentimes need understanding attention. The hospital can do much to cure the ill patient, but it can further help to return him home a grateful, strengthened, and a more useful citizen.

NOT SATISFIED TO BE MEDIOCRE

Medicine in Mississippi has made a steady advance for several years. Our excellent health services are known around the world. It is hoped that by January 1, 1955, the doors of our four-year medical school will be ready to open in our beautiful and rapidly growing capitay, a city of almost 125,000 population.

But our medical school will not become great and useful and outstanding in its influence unless organized medicine in Mississippi gets squarely behind it and unless the people and the legislative body back it with pride and interest and money. Our medical school can not be sold short on its faculty. It must be the best. We must seek to know the best basis upon which it can be set up. We believe that the Board of Trustees of Institutions of Higher Learning will go full length to give us the best medical school possible. In the interest of our medical school and medical service to all the people, let us think wisely and act unselfishly in the interest of our medical school. If it is to be a ranking medical school, it must have heart and soul and personality and offer the best in scientific knowledge. Less means mediocrity, which can only beget mediocrity in students and ultimately mediocrity in medicine for our people.

IF THE PENDULUM SWINGS

The family doctor has been praised and honored. He has served well. But what is the future trend for the young man in medicine? The July issue of the *Cosmopolitan Magazine* has quite a long article answering the question. The article is captioned, "Is the Family Doctor Obsolete?" The people flock to specialist, even if he is only self-styled. Dr. Fount Richardson, editor of the Arkansas Medical Journal, and prominent in the Academy of General Practice, has the following terse statements: "The general practitioner can protect his patient against the 'surgery for money' specialist. He can save the patient from the gougers. He can keep the cost of medical care within reason, save him against the fee-splitting surgeon." "Instead of referring our patient to a specialist, we should call the specialist and have him come to the patient----." "Open every hospital to the family doctor. Return every patient to the immediate care of his personal physician and whatever technical assistance his physician might feel is needed, require immediate revision of the rules of the various regulating agencies to affect the rules above," he demands.

The practice of medicine is in a changing process, no doubt. We have some confusion. But all the agencies for giving the people the very best medical service can be harmonized and affiliated to the good of all. Every facility should be utilized to build health assets, but the people should be given standards by which to judge and claim medical service.

DR. HIGHTOWER

In the passing of Dr. G. D. Hightower of Webb, Miss., the Fifty-Year Club lost one of its finest members, the State Medical Association a great practitioner of medicine, and the entire state an outstanding Christian citizen. It was good to know Dr. Hightower and claim him as a personal friend.

The same individual who would not dream of being without service contacts for his oil burner, television, car, or kitchen appliances, drifts along without a family doctor until 4:00 a. m. some dark stormy morning when a sudden pain in his department of the interior takes over. If he's paid the telephone bill lately, in no time he's waking up the nearest doctor with a bellow for help . . . Can you imagine the reaction of the oil-burner man at that hour if he'd never heard of this Joe before? —Bay States

News and Comment

THE NEW PRESIDENT

DR. CUMMINGS H. McCALL

At the helm of the Mississippi State Medical Association stands one of the state's indefatigable workers, broad awake, yet affable and mild-mannered—Dr. Cummings H. McCall of Gulfport.

A native of Montgomery, Ala., Dr. McCall received his education at Auburn, Howard College, and two years in medicine at the University of Alabama, Tuscaloosa. He earned his M.D. from Rush Medical School of the University of Chicago, Chicago, Ill., exactly one hundred years after his grandfather was awarded his diploma from the Memphis Medical School, now the University of Tennessee. There is another doctor in the family, a brother, Dr. Julius Watkins McCall, who practices in Cleveland, Ohio.

Dr. McCall might give the present generation of med students some pointers on how to get that M.D. though married; he went to school along with his son and daughter while Lucile happily adapted to a variety of problems involving mother, med student's wife, and finally young doctor's wife. They chose the Gulf Coast for a residence in 1928, and have since then made it their home.

Dr. McCall has been president of the Gulf Coast Clinical Society, the Coast Counties Medical Society, and the Young Men's Business Club there. He is a member of Sigma Mu, a Shriner, a Mason, a fellow in the American College of Surgeons, and a veteran of World War I. He lists first among his hobbies "grandchildren," of which there are four, then fishing and hunting.

NEW FIFTY-YEAR MEN

Fifty-year men are still coming into the fold. Dr. Sherrod Towns of Union Church, was welcomed in a ceremony presided over by Dr. W. H. Frizell, president of the Fifty-Year Club, and Dr. D. V. Galloway of the State Department of Health represented Dr. Felix J. Underwood and delivered the certificate.

Dr. W. H. Sutherland of Booneville, the founder of the Northeast Mississippi Hospital, was presented his pin and certificate and other gifts of appreciation from friends and the hospital staff on Sunday, June 13. He has been outstanding in general practice and in general surgery. He has a fine record in hospital administration.

Dr. George Googe had his day at his home church in Rienzi on June 20, when he received the fifty-year pin and certificate and other gifts. The entire community demonstrated its appreciation in this service.

Since the organization of the fifty-year club, about 120 men have been given certificates and the membership now is about 70. It is good for the medical profession and for the people to show appreciation to a type of men who have done their part so well for human society. Holding these celebrations in the church is a fine gesture on the part of both the medical profession and the people. It represents a type of public relations that money can not buy.

HOSPITAL ASSOCIATION PRESIDENT

Preston L. Hill, administrator of Martin Sanatorium and Lucius O. Crosby Memorial Hospital (under construction), Picayune, Miss., is now president of the Mississippi Hospital Association. He has held his present position for the past eight years. Before entering the field of hospital administration, Mr. Hill was for five years a school superintendent, for fifteen years general secretary of the Picayune Y.M.C.A., and for two years cost inspector during World War II. He has served on the board of directors of Blue Cross in Mississippi since its organization.

"Citizen of the Year" in Picayune for 1950, Mr. Hill is a past president of the Picayune Rotary Club, past chapter chairman of the Picayune Chapter of American Red Cross, past chairman of the board of stewards of First Methodist Church in Picayune, and is at present home secretary, Picayune Chapter of American Red Cross. He was born February 24, 1903, in Macon, Miss., and attended Mississippi State College, George Peabody College, and Tulane University.

POLIO VACCINE TRIAL NEEDS PHYSICIANS' AID AS IT MOVES INTO EVALUATION PHASE

More than 600,000 children have completed three inoculations in the field test of the trial polio vaccine developed by Dr. Jonas E. Salk of the University of Pittsburgh. The emphasis now shifts to the evaluation study under the direction of Dr. Thomas Francis, Jr., University of Michigan School of Public Health. The validity of the evaluation is dependent upon data gathered on poliomyelitis cases in the test groups, *including those children in the first three grades who did not get vaccine.*

In addition, data on cases among family members of participating children are an integral part of the study. Since the number of poliomyelitis cases among the test groups may not be large, it is essential that all cases are completely reported. Early diagnosis, prompt reporting and follow-up, and the securing of *necessary epidemiological information and laboratory specimens* are important factors in the evaluation.

An outline of procedures and copies of necessary forms have been sent to local and state health authorities. It is important that physicians in areas where vaccinations were not given, cooperate in the study by notifying local or state health officers of cases occurring among children who participated in the trials and then migrated to another area and children who go to summer camps. Local health officials also need information on participating children who receive injections of gamma globulin.

This phase of the study will depend, to a large degree, on the wholehearted cooperation of practicing physicians.

INTERNATIONAL SURGEONS TO MEET

The nineteenth annual congress of the United

States and Canadian Sections of the International College of Surgeons will be held in Chicago, with headquarters at the Palmer House, September 7 through 10, with advance registration, business meetings, and a meeting of the Woman's Auxiliary on Labor Day, September 6.

CONTINUOUS LOCAL ANALGESIA

(Contributed by DR. ROBERT H. BRUMFIELD, McComb, Miss.)

Total relief of pain in operative and other major wounds without the use of narcotics may be achieved by inserting small polyethylene tubes in each tissue plane as the wounds are sutured. Xylocaine 2 per cent is injected through these tubes as needed to relieve or even prevent pain.

This method is of extreme importance in thoracotomies, as the cough reflex is not inhibited by narcotics and the cough mechanics are not impaired by pain.

In sixty-five operative wounds no narcotics were required in the post-operative period. Four minor wound infections occurred, but subsided rapidly when an indicated antibiotic was added to the xylocaine solution in concentrations too weak to cause local tissue reaction. All wounds have healed without premature absorption or increased fragility of suture. In fact, suture materials soaked in xylocaine solution over a period of several weeks do not lose their tensile strength or friction stability.

ABSTRACT FROM PEDIATRICS LITERATURE

Harvey F. Garrison, M.D.

Terramycin in the Treatment of Pneumonia in Children. O. D. Fisher and C. R. Whitfield, Belfast, England.

A clinical trial was made with 50 children with pneumonia using terramycin or a standard treatment of penicillin and sulfonamide. The method of diagnosis of these cases is discussed and the groups are considered comparable. The results of treatment show that there is no significant difference in mortality, duration of pyrexia, or length of stay in hospital of the two groups, but there is a greater incidence of delayed pulmonary resolution and thrush infection in the terramycin group. Terramycin avoids the unpleasantness involved in giving injections to children and is well tolerated. In view of the expense and limited availability of this drug in England, penicillin and sulfonamide therapy remains the most satisfactory treatment for bacterial pneumonia in childhood.

COMMENT: Our experience in the treatment of pneumonia with terramycin has been essentially the same as that of the author of this article. Terramycin often causes gastro-intestinal irritation, frequently to the extent of diarrhea. And this should be anticipated in many cases. After all, in most cases it is economical and practical to use penicillin and sulfonamides. In this connection I hardly agree with the authors.

FAVOR MORE FUNDS

The American public would favor an increase of at least five times the amount now appropriated by Congress for the study and treatment of cancer according to a recent survey by Dr. George Gallup, noted director of the American Institute of Public Opinion.

The reaction indicated an increasing interest in the fight to conquer this disease which is the number two killer.

The survey indicated that almost eight out of every ten adults would be willing to see the government spend $100 million for cancer study and control. Six out of the ten even said they would pay the higher taxes.

AOTA MEETING

The annual conference of the American Occupational Therapy Association will be held at the Shoreham Hotel, Washington, D. C., October 16-22, 1954. The meetings will be as follows:

October 16-17—Preliminary Meetings
October 18-19—Institute-Interpersonal Relations
October 20-21-22 — General Conference — Theme: "Capitalize Your Assets"

UROLOGY AWARD

The American Urological Association offers an annual award of $1000 (first prize of $500, second prize $300, and third prize $200) for essays on the result of some clinical or laboratory research in urology. Competition shall be limited to urologists who have been graduated not more than ten years, and to men in training to become urologists.

For full particulars write the Executive Secretary, William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Essays must be in his hands before January 1, 1955.

Fifty Year Club Biographica

SHERROD ROSS TOWNS

Sherrod Ross Towns, son of William A. and Harriet Ross Towns, was born near Brookhaven on April 4, 1876.

After finishing Union Church High School, he taught in the public schools of Copiah and Jefferson counties for three years. In 1904 he graduated from Vanderbilt University and received his medical degree.

On June 5 and 6, Doctor Towns attended a reunion of the 1904 class of Vanderbilt and received a Fifty-Year pin.

For the past twenty years, Doctor Towns has served as chairman of the Jefferson County Democratic Committee. For sixteen years he served as health officer for Jefferson County.

On May 6, 1954, Doctor Towns was honored by the State Medical Association with lifetime membership in the Fifty-Year Club.

On June 11, the citizens of Jefferson and adjoining counties honored him with a reception at the First Presbyterian Church, commemorating his fifty years of practice.

For many years, Doctor Towns has served his fellowman faithfully and well and has upheld all of the traditions of medicine.

GEORGE WILLIAM LAND

George William Land was born in Alabama on August 1, 1875.

Doctor Land, following graduation from Vanderbilt University, served as health officer of Jasper County for a while. He has served as local surgeon for the G. M. and O. Railroad for the past 40 years. He also has served as trustee for the local school for thirty years. Presently, he is serving as bank president. He is a member of the Baptist Church.

Recently, the Fifty-Year Club of the State Medical Association honored Doctor Land with lifetime membership.

Since 1904, Doctor Land has practiced at Louin where he has served his fellowman faithfully and well.

NUMBER OF PHYSICIANS IN U. S. REACHES ALL-TIME HIGH

The total number of physicians—218,522—licensed to practice in the United States set an all-time record in 1953. Official figures indicate that 7,276 persons were added to the medical profession in 1953. During the same period, 3,421 physician deaths reported to the AMA headquarters gives a net increase of 3,855 in the physician population of the country. In 1952, an increase of 2,987 was reported.

ANNOUNCEMENT

Announcement . . . The seventh annual meeting of the American Association of Blood Banks will convene at the Shoreham Hotel, Washington, D. C., September 13-14-15, 1954. For further information write Office of Secretary, American Association of Blood Banks, 3500 Gaston Avenue, Dallas, Texas.

Deaths

DR. MATTHEW P'POOL

Dr. Matthew Wall P'Pool, Sr., 83, resident of 1905 Terry Road, died May 26 at a Jackson hospital following a long illness.

Dr. P'Pool, a general practitioner as well as an eye, ear, nose and throat specialist, practiced in Newman and Learned for many years. He came to Jackson 11 years ago. Dr. P'Pool was a native of Wallonia, Ky., but was reared in Edwards, Miss. In 1899 he was married to Miss Grace McClelland Hubbard of Learned. He graduated from Tulane University in 1901. He was a Baptist.

Surviving members of his family are two sons, Matthew W. P'Pool, Jr., and E. Shirley P'Pool, both of Jackson; one brother, John E. P'Pool of Meridian; and two sisters, Mrs. Lillie Backstrom, of Columbus, and Mrs. Bruce Rogillio, of Greenwood, Wisconsin. A number of nieces and nephews also survive.

DR. JOHN A. HUGHES

Dr. John A. Hughes, Memphis eye, ear, nose and throat specialist for 34 years, who died May 28 at St. Joseph's Hospital in Memphis, was a former Itawambian, having been born in Dorsey.

Dr. Hughes started his practice in Kirkville community, later moving to Baldwyn and from there to Memphis in 1920, where he was associated with Dr. J. F. Hill and the late Dr. Rogert Fagan.

He leaves his wife; his son, John G. Hughes of Memphis; his brother, Walter Hughes, and two sisters, Mrs. Jim Gurley and Mrs. Ella Davis, all of Dorsey.

Woman's Auxiliary

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NEW PRESIDENT

MRS. M. M. SNELLING

PLEDGE OF LOYALTY:

"I pledge my loyalty and devotion to The Woman's Auxiliary of the American Medical Association. I will support its activities, protect its reputation and ever sustain its high ideals."

10 MUSTS FOR A DOCTOR'S WIFE

She must not know the meaning of the word "jealous."

She must never gossip.

She must run a cafeteria, serving meals at all hours for her husband.

She must be—like Caesar's wife—above reproach.

She must have self-reliance and self-control.

She must be able to think quickly and sanely in emergencies.

She must be a diplomat, see all, hear all, say a lot, yet say nothing.

She must learn to bear stoically and without complaint, disappointments in her personal plans.

She must be a good mother and father, because doctors are often too busy to discipline their own children.

She must be a good "doctor" because doctors never take time to doctor themselves.

The Use of Gamma Globulin in the Prevention of Various Diseases*

SYDNEY S. GELLIS, M.D.†
Boston, Mass.

The successful fractionation of human plasma into its various components made possible for the first time in 1944[1],[2] the testing of gamma globulin against measles. The demonstration of its value in the prevention and attenuation of measles led to investigation of its prophylactic effect in other diseases until now, 10 years later, its use has been quite well defined. In addition, the discovery of patients with congenital and acquired deficiency of this fraction of blood has opened a great field of study for the future.

Cohn's Fraction II of human blood consists almost entirely of gamma globulin. In this fraction are contained most of the antibodies against several virus infections together with antibodies against other antigens; antibody has been demonstrated in other fractions but gamma globulin appears to be the chief antibody containing fraction of human blood. Because of the fact that gamma globulin has been prepared from plasma pooled from hundreds of donors each lot is fairly comparable to other lots in antibody content. Furthermore the antibody content is extremely stable; in our experience 8-year-old gamma globulin preparations have been as effective in the prevention of measles and hepatitis as lots which are only a few months old. This has been true regardless of the methods of storage; refrigerated lots have shown the same potency as lots held at room temperature. In addition the subjection of gamma globulin to marked fluctuations in temperature has not measurably altered the potency. We conclude on the basis of this experience that the dating of gamma globulin by the manufacturer may be disregarded and is probably unnecessary. Other antibodies may not be as stable, and further testing should be carried out before such conclusions should be considered final.

Gamma globulin as supplied to the physician is not a pure preparation but contains no less than 16 per cent of gamma globulin. Each cubic centimeter of the preparation contains the antibody equivalent of 40 cc. of whole blood. It may be given intramuscularly or subcutaneously; most frequently it is given intramuscularly. It should not be administered intravenously; deaths have occurred from this route of administration. Care should be taken therefore to make certain the needle is not in a vein, despite the fact that the material is prepared from human blood. The incidence of reactions to gamma globulin administered intramuscularly is small, Janeway[3] recording a reaction rate of 1.7 per cent, consisting of local soreness and fever. This incidence occurred in individuals receiving gamma globulin in relatively small doses for measles prevention. In studies which we conducted designed to test the possible therapeutic effect of large doses (50 cc.) of gamma globulin in various diseases, no reactions to the injections were noted other than local soreness. Thus one may freely inject gamma globulin intramuscularly in the small amounts customarily employed with little fear of reaction of any consequence.

Inasmuch as blood and blood products have been shown to produce homologous serum hepatitis in recipients, the incidence being highest following the administration of various fractions of blood, lower in large plasma pools, still lower in small plasma pools, and lowest of all following whole blood transfusions, the question of the danger of homologous serum hepatitis following gamma globulin has been raised. Surveys conducted in the United States have failed to produce any incidence of this complication. A recent experience in England[4] provided by pure chance a well-controlled study of this problem. A lot of plasma was injected for measles prophylaxis into 10 children. Within 57-64 days of inoculation, 7 of the 10 children had hepatitis and 3 died. Part of this original lot had been fractionated and 56 children who received the gamma globulin were investigated; only one mild case of jaundice occurred. On the basis of this study one may conclude that the danger of hepatitis following gamma globulin administration is practically nil.

Having discussed the possible drawbacks of gamma globulin we may now turn to the positive side of the ledger, little having been found as evidence against the use of this material. In the following studies I shall quite naturally emphasize the diseases in which I have had personal experience.

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I. MEASLES: Several studies have amply confirmed the effectiveness of gamma globulin in the attenuation and prevention of measles since the original publications in 1944. The recommended dosage is .02 cc. per pound of body weight for attenuation, and 0.1 cc. per pound of body weight for prevention, administered during the first 6 days of the incubation period. In the past few years though I have heard few complaints regarding the preventive effects of gamma globulin a number of physicians have mentioned inconsistencies as far as the attenuating dose is concerned. Some have complained that the attenuating dose has served to prevent completely, others that it has been entirely ineffective.

It is necessary to emphasize that within a rather wide range of dosage, protection or attenuation still remains a matter of chance. This seems to be due to the difference in susceptibility of individual children and is born out by the fact that a large family of susceptible children all exposed to the same case of measles develop the disease in varying grades of severity. For this reason it is unwise to predict to parents that attenuation or complete prevention will necessarily follow a given injection. It is my feeling, also, that attenuation or prevention will be more likely to be achieved the earlier in the incubation period the prescribed dosage is given.

Increasing doses of gamma globulin are required to affect the development of measles after the sixth day of the incubation period. In our original studies we felt that the course of the disease could be altered by large doses given even as late as the appearance of Koplik spots. Once the rash has appeared, however, gamma globulin regardless of the amount given is unlikely to alter the course of the infection. Bivings[5] has recently suggested a different dosage schedule depending on whether the contact is a sibling or non-sibling. He feels that dosage for attenuation or prevention should be higher if one is dealing with a family outbreak. On theoretical grounds alone I cannot see why this should be necessary inasmuch as measles is an "all or none" disease, and considering variability in susceptibility and possible variation in antibody content of different lots of gamma globulin I feel that the dosage in use is quite satisfactory.

It is my feeling that all healthy children should receive attenuating doses of gamma globulin, if it is available, to lessen the severity of the disease. The incidence of complications in attenuated disease, namely otitis media and pneumonia, is markedly lowered without necessarily resorting to prophylactic antibiotics. The studies of Karelitz[6] indicate that the majority of patients with attenuated disease develops lasting immunity. The only children whose disease should be prevented are very young infants whose gamma globulin levels may be very low—recent evidence suggests that there is a real incidence of measles in exposed infants—and older infants and children who are ill. Mascia, Chick, and Levy[7] have recently presented fresh evidence that measles caused no spread of existing tuberculosis. I think, however, that it is still wise to prevent measles in such patients.

I have been impressed over the past few years that attenuation of measles does not lessen the incidence of measles encephalitis. A total of 5 cases[8] has now been reported in the literature of encephalitis occurring in children whose measles was attenuated with gamma globulin. An additional 10 cases have been brought to my attention. I know of no large series of follow-up study in which the incidence of this complication in attenuated measles has been compared with the incidence in non-attenuated disease but I suspect that there would be no difference. We have also tried to affect the course of measles encephalitis by the administration of huge doses of gamma globulin up to 100 cc. but have not been successful in altering the course.

This is in contrast to the findings reported by Odessky *et al*[9] who found a lower mortality rate in patients with measles encephalitis treated with gamma globulin in much smaller doses than we have employed. Their findings show inconsistencies such as a higher death rate in patients receiving lower dosages of gamma globulin than in the untreated group. It has been my own experience that once a tissue or organ has been attacked by a virus infection there is no effect from gamma globulin. For example, during the war we investigated the possible effect of large doses of gamma globulin given after symptoms had developed but prior to the onset of jaundice and found that the course of the disease differed in no way from that of the untreated disease. The same applied to large doses of gamma globulin in mumps orchitis once the first symptoms and signs of orchitis had developed.

II. MUMPS: At the present time gamma globulin has little role in the prevention or treatment of mumps. In studies carried out in the army[10] gamma globulin in large doses failed to prevent mumps. We then tried to lower the incidence of mumps orchitis by the administration of gamma globulin in 50 cc. doses given within 24 hours of the onset of parotitis[11] but found no statistical difference in the incidence of orchitis in the men receiving gamma globulin from that in the untreated controls. On the other hand, in a series of 51 men with parotitis of less than 24 hours duration given 20 cc. of gamma globulin prepared from mumps convalescent serum, 7.8 per cent of the men developed orchitis whereas in 51 controls the incidence was 27.4 per cent, suggesting that such gamma globulin is effective. However, since gamma globulin prepared from mumps convalescent serum is available only in limited quantities its usefulness in the prevention of orchitis is of academic interest and for want of any other helpful agent the prevention of this disease and its distressing complication must await the development of an effective vaccine.

III. GERMAN MEASLES: The relationship between german measles during the first trimester of pregnancy and congenital abnormalities in the fetus has been well established although the exact incidence of such abnormalities is still unsettled. The usefulness of gamma globulin in the prevention of german measles is limited to early preg--nancy since this is the only condition requiring prevention of the disease. Studies carried out in this country have shown questionable results. Stokes[12] has presented a small study suggesting the efficacy of the material. In a study conducted by the New York County Medical Society[13] the results were quite favorable, the protective effect lasting about two weeks. In this study in children the dosage employed was 0.1 cc. per pound of body weight. Korms[14] tested the efficacy of gamma globulin against german measles during an outbreak of the disease in a large mental institution, using 0.1 cc. per pound of body weight. During a 3-26 day period following the administration of gamma globulin 9 cases appeared among 45 immunized persons (20%) as compared to 35 cases among 60 comparable controls (58.4%). Another lot of gamma globulin failed to prevent the disease and a third lot showed only slight protection. He concluded that these conflicting results reflect the relative potency of german measles antibodies in different lots of gamma globulin. In view of the apparent success the Australians[15],[16] have reported, using gamma globulin prepared from german measles convalescent serum this would be the ideal preparation to employ. Since it is not available in this country at present, we have been recommending the administration of relatively large doses of ordinary gamma globulin to susceptible women exposed to german measles during the first trimester of pregnancy, namely 20-30 cc. preferably prepared by pooling gamma globulin from three or more lots. Under these conditions we have as yet to encounter a single case occurring in presumably susceptible woman intimately exposed to the disease within families; to date we have accumulated 45 such family exposures. Although this is far from satisfactory evidence, it is suggestive and we feel that such prophylactic therapy should be employed pending the availability of more potent material.

IV. INFECTIOUS HEPATITIS: The efficacy of gamma globulin in the prevention of infectious hepatitis has now been repeatedly demonstrated. The present recommended dosage is 0.01 cc. per pound of body weight and this affords excellent protection unless given during the 5-7 day period prior to onset of symptoms. In recent studies of family outbreaks of the disease we[17],[18] have shown that approximately 32-48 per cent of families with one case of hepatitis will develop additional cases and it is therefore important to determine which patients in family groups should receive protection. Inasmuch as this disease is relatively mild in children, we feel that gamma globulin should be withheld except in children with other acute or chronic illnesses and in children under a year in whom the disease may be quite severe. Owing to the length of illness in adults with infectious hepatitis and the inconvenience to the family of the loss of services of either mother or father it appears wise to immunize all adults within the family group. This is, of course, somewhat wasteful of gamma globulin since it is estimated that approximately 50 per cent of all adults over the age of 30 are immune. However, the only method of determining immunity, the skin test devised by Stokes, is not available for general use and the antigen is extremely labile. Hence the injection of gamma globulin into all adults in the family is justifiable at least at the present time.

The recent work of Stokes and his co-workers[19] suggests that lengthy protection (up to 9 months) against hepatitis following gamma globulin may be due to the development of passive-active immunization. That is, as the passive immunity conferred by gamma globulin wanes, the virus may give rise to subclinical disease resulting in active immunity. These findings apply to institutional epidemics where hepatitis is endemic and exposure to the virus is prolonged. Such prolonged exposure to virus is unlikely outside of institutions. Thus the determination of an attenuating dose of gamma globulin in this disease would prove most helpful but will require further investigation. The development of a vaccine will, of course, eliminate the need of gamma globulin in dealing with infectious hepatitis. Gamma globulin has no effect in infectious hepatitis once symptoms have developed[20].

V. Homologous serum Hepatitis: Two types of hepatitis virus may be found in the blood—a) that of infectious hepatitis which presents a relatively brief viremia and b) that of homologous serum hepatitis. The virus of homologus serum hepatitis is apparently present in about 0.2 per cent of the population. Where the virus originated is unknown but it is transmitted only through transfusion of blood and blood products. The carriers of this virus appear entirely normal and to date no method has been devised which permits the detection of such carriers. Most have no history of jaundice in the past, yet their blood administered to recipients is capable of producing jaundice in the recipient. Thus the rejection of donors with a past history of jaundice, in all likelihood, has a minor effect since it eliminates individuals who at one time had a brief viremia and are now excellent candidates for blood donation whereas the carrier of homologous serum hepatitis stands little chance of being eliminated by such questioning. Available evidence suggests that the viremia of homologous serum hepatitis must be reckoned in terms of years or a lifetime rather than in terms of days as in infectious hepatitis. Experimental studies and clinical findings indicate that there is no cross immunity between the two viruses and that the adult population which has such a high immunity to infectious hepatitis is as susceptible to the virus of homologous serum hepatitis as the younger age groups.

Most of the evidence which has accumulated over the past 10 years strongly suggests that gamma globulin is ineffective against homologous serum hepatitis virus[21]. It is wise to remember that in a given patient with hepatitis and jaundice the diagnosis of homologous serum hepatitis is made only if there is a history of the injection of blood or blood products within the previous six months, a history of the previous administration by needle of biologicals or the withdrawal of blood under circumstances in which the sterilization of syringes and needles has not been ideal. For this reason the doctor, nurse, or technician who has been pricked with a needle employed to draw blood from a jaundiced patient should not necessarily be considered a candidate for homologous serum hepatitis. He should receive gamma globulin since the virus involved may well be that of infectious hepatitis. However, since the virus involved may be that of homologous serum hepatitis, which has a long incubation period, the administration of a large dose of gamma globulin once a month for three months is in order in view of the fact that the efficacy of gamma globulin in large doses and over a three-month period has not been tested. Until there is proof that such therapy is ineffective the individual should be given the benefit of the doubt. Under these circumstances we have recommended a monthly injection of 20-30 cc.

VI. Poliomyelitis: The recent field studies on the use of gamma globulin in the prevention of poliomyelitis are sufficiently well known to require no review[22],[23],[24]. Since these initial trials, however, there has been considerable disagreement regarding the conclusiveness of the tests and the exact methods of distribution of gamma globulin. The gamma globulin which is being produced for poliomyelitis prevention is now labeled as poliomyelitis immune globulin to indicate that it has been tested for content of polio Type 2 antibodies. The debate concerning the use of gamma globulin has narrowed down to the question of whether the available supply will be used most effectively if administered to family contacts or to the population at large in areas involved in severe epidemics. Those opposed to its use in family contacts argue that most secondary cases of polio in families occur too soon after the first case has been recognized to be affected by gamma globulin and that in approximately 95 per cent or more of households there are no secondary cases of clinical poliomyelitis[25]. Proponents of the use of gamma globulin[26],[27] agree that the rate of secondary paralytic cases among household contacts is low but fairly constant at about one family in every 30 families involved. This gives a disease rate among household contacts about 10 times greater than in the population at large in the average severe epidemic area. Futhermore, though most of the secondary cases occur soon after the first case, 12-20 per cent have their onset 10 *or more days* after the initial case and hence might be affected by gamma globulin. Coriell[27] points out that after taking all these factors into consideration the small percentage of susceptibles left among the family contacts which would theoretically be helped by gamma globulin will still have a disease rate far in excess of the rate in the average epidemic community. He states that if in the United States poliomyelitis occurs in 30,000 families and an average of four household contacts receive injections it would take 120,000 doses for all household contacts in the nation. On the basis of the 1,000,000 total doses available in 1953 this would still leave 88 per cent of all available gamma globulin for mass inoculation technics.

To sum up, the practicing physician is faced with 1) the question raised by some investigators concerning the efficacy of gamma globulin in the prevention of poliomyelitis and 2) differences of opinion as to the value of administration of gamma globulin to family contacts. I can only conclude that data available up to the present time is not definitely conclusive with regard to the value of gamma globulin as a prophylactic agent and that all arguments for and against the injection of family contacts are still highly theoretical and can be solved only by further study. Perhaps the field studies carried out during the past summer will answer these questions. Regardless of the outcome of the recent field studies the pressure from the public will probably force the use of gamma globulin both in family contacts and on a mass scale in epidemic areas at least until an effective vaccine is available.

VII. Agammaglobulinemia: In May 1952 Colonel Bruton[28] of the Walter Reed Army Medical Center described a patient with recurrent severe infections who proved to have a deficiency of gamma globulin. Since then this condition has been studied in great detail by Janeway and his co-workers[29],[30].

The syndrome is characterized by a history of recurrent bacterial infections, deficient antibody production, and very low levels of serum gamma globulin although the total serum protein is relatively normal.

All cases reported to date have been in males and the condition in children is thought to be congenital. The severe infections do not start immediately after birth presumably because of lack of exposure to infection. There is some suggestive evidence that the defect is inherited.

Although electrophoretic analysis fails to show gamma globulin in the blood of these patients, immunochemical studies reveal that very small amounts are present. Perhaps these small amounts are sufficient to render the patient immune to repeated attacks of various viral infections but insufficient to produce antibody levels which are effective against bacterial infections.

It is believed that these patients succumbed early in life in the days prior to antibiotics. The syndrome should be considered in any patient with repeated severe bacterial injections such as pneumonia, meningitis, pyoderma, severe arthritis, etc. The absence of isohemagglutinins in the blood in patients of blood groups O, A, or B may be used as a test to screen such patients for if such antibodies are found there is little likelihood that the patient has agammaglobulinemia.

Janeway and his group have also discovered adults with this condition apparently in an acquired form. In some of these a severe staphylococcal infection has preceded the disappearance of gamma globulin.

With the administration of gamma globulin these patients have had striking changes. The recurrent infections have been prevented; patients with extensive pulmonary infiltrations have shown clearing. The dosage of gamma globulin is 0.3 cc. per pound of body weight and this is given once a month. Several of the patients have done so well after the first few months that an injection once every 6 or 8 weeks has sufficed.

This syndrome is of great interest not only because of the patients concerned. It raises problems in the entire field of immunology. For example may some individuals produce abnormal types of gamma globulin which are ineffective against specific bacteria. Further investigation into the basic mechanisms involved in the production of gamma globulin may shed light on the many puzzling problems in the field of infectious disease and allergy.

I have tried in this short time to review the important uses of gamma globulin, a product which has come a long way since 1944 when it was first used in measles prevention. As vaccines are developed the specific need for gamma globulin in certain diseases will become unnecessary. One can foresee, however, the development of specific gamma globulins in the future and I feel strongly that the use and understanding of this material has only begun.

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Crushing Injuries of the Chest*

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CRUSHING INJURIES of the chest are encountered by almost every practitioner of medicine no matter what his special interest may be and an understanding of the physiological considerations involved must be a part of his stock-in-trade in order to cope with these otherwise fatal injuries. It is the purpose of this paper to outline clearly and concisely those factors which make the difference between death and recovery of the patient.

The majority of these injuries occur to the driver or passenger in an automobile which collides with another or runs into an immovable object, causing instantaneous deceleration. The driver is thrown against the steering wheel or steering post, while the passenger beside him is thrown against the dash board. It is interesting that the human body can withstand instantaneous deceleration from twenty-five miles an hour to zero, the speed at which a man can run, usually without fatal injury. But two cars colliding head-on at thirty miles an hour each is the same as a car hitting a concrete wall at sixty miles an hour; and both are equivalent to driving off the roof of a twelve-story building.

But the automobile is not the only offender. The farmer may receive a crushed chest when his tractor upsets upon him. The woodsman suffers a similar injury when his tree falls the wrong way. The industrial worker or ginner may be crushed between the tail board of a truck and a loading platform and the power-lineman may be shocked into falling from a pole or tower. Examples of all these injuries have appeared in our practice and no doubt have in yours.

SPECIAL CONSIDERATIONS

The *simple fracture* of one or two ribs without complication is not within the scope of this paper. Ribs will heal in spite of everything and the only consideration of the physician is the relief of pain. Strapping or lack of strapping is a matter of the individual physician's choice, but if it is to be used, sufficient adhesive tape should be utilized to create a strong support which is anchored *across the midline* both front and back (but never encircling the chest). A simpler method of relief of pain is the injection of a few cubic centimeters of one per cent novocaine into the fracture line itself, repeated once or twice as necessary, thereby relieving the patient of the discomfort of adhesive taping.

The chest wall with *multiple fractures producing a "soft" chest wall* sets up a series of physiological disturbances which are dangerous and potentially fatal. Such a chest wall bulges outward when the patient tries to cough, and sucks inward on deep inspiration which is exactly contrary to the normal movements and therefore called "paradoxical respiration." This paradoxical motion decreases the ventilatory exchange of the lungs by partially neutralizing the patient's attempt to change the thoracic volume and the internal pressures which are necessary for the ingress of air. Furthermore, this soft chest wall prevents the patient building up a sufficiently high positive pressure to produce an effective cough for the evacuation of the excessive secretions which always follow a contusion of the lung.

Such a chest wall *must be stabilized* promptly by firm adhesive strapping which crosses the midline both front and back, even though one compresses the soft chest wall in order to secure this necessary stability.

The problem of the bilateral crushed chest in which adhesive strapping is impractical can also be solved with relative simplicity. Through two small incisions at either border of the lower end of the sternum a towel clip can be inserted to engage both plates of the sternum. An ordinary piece of rope used for traction can then be passed through the handles of the clip and an overhead support and attached to a three-pound or five-pound weight. This will hold the anterior chest wall in position of maximum expansion at all times, thereby stabilizing it and permitting the patient to breathe satisfactorily with his diaphragm. Contrary to what one might imagine at first, this fixation of the chest wall permits a more efficient change of intrathoracic pressure and exchange of air than is possible when even slight paradoxical motion of the chest wall is present.

EVACUATION OF BRONCHIAL SECRETION is essential to the welfare of these patients with contused lungs. The conscious patient must be made to cough at least every two hours until all secretions are raised. To help make this possible the patient is kept well hydrated, expectorants are used, and carbon dioxide and oxygen inhalations are utilized as in the usual post-operative regimen.

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Pain is the prime deterrent to effective coughing. This, however, is overcome by the intercostal injection of one per cent novocaine in each interspace through which painful intercostal nerves travel. This is most readily done at the transverse processes, and 5.0 cc. of 1 per cent novacaine in each interspace affected is usually sufficient to give adequate comfort for a number of hours.

The use of heavy sedation with opiates is to be discouraged because of its depressing effect upon the respiration and the difficulty it causes in raising mucoid secretions. Besides, it is unnecessary when intercostal nerve block is skillfully employed. It is unusual for nerve block to be required more than two or three times for a patient.

The *unconscious patient* with an associated head injury is unable to evacuate his own secretions and will inevitably develop atelectasis with its associated complications unless a *tracheotomy* is promptly performed and the bronchial tree kept clean with frequent aspirations by means of a catheter and suction. Tracheotomy is likewise indicated in the *conscious* patient who for one reason or another fails to keep his bronchial tree clean and develops an atelectasis. It is to be preferred to the transient relief obtained by bronchoscopic aspiration of secretions.

Pulmonary infection is a major consideration but can be readily avoided by the routine prophylactic use of broad coverage antibiotics when combined with the measures described above. *Antibiotics cannot be depended upon*, however, to prevent atelectasis and pneumonia unless the chest wall is stabilized, the patient's pain is relieved by intercostal nerve injection, and the patient is provided with means for the removal of his bronchial secretions.

COMPLICATIONS

One or more of the following complications are likely to be present in association with any severe crushing injury of the chest. The likelihood of their presence must be borne in mind and their presence or absence individually determined.

1. Pneumothorax with or without Blood

Puncture of a lung by a sharp rib fragment often complicates a crushing injury of the chest. The patient may have a massive tension pneumothorax causing extreme dyspnea at the time he is first seen, or the pneumothorax may develop slowly and not be apparent upon admission x-ray films, but producing dyspnea several hours after the injury. For that reason it is wise to obtain an admission x-ray film eight hours later. All air and fluid should be kept evacuated from the chest by aspiration when feasible, or by intercostal tube leading to a water trap when the air leak or blood in the pleural cavity are massive.

The follow-up care of this particular complication determines *whether or not the patient's lung will ever be useful again.* A pleural cavity in which serous effusion or blood are permitted to collect will become lined with a layer of fibrin which later organizes into strong fibrous tissue. This leathery jacket encasing a lung prevents its expansion and contraction and eliminates its usefulness as an organ of respiration. Similarly, a chest wall lined with a heavy deposit of fibrous tissue becomes relatively inflexible and the diaphragm becomes fixed in its position so that ventilatory exchange of air in that lung becomes negligible. Therefore it is important, so long as there is bleeding into a pleural cavity or a tendency for serous effusion to form, that the patient be followed with frequent radiographic examinations and any such fluid removed promptly. In this connection, clotted blood often interferes with total evacuation of a pleural cavity, but this can readily be overcome with the use of streptokinase-streptodornase (Varidase), an enzymatic preparation for the lysis of fibrin and desoxyribose-nucleoprotein.

2. Cardiac Contusion

The heart lies in a precarious position between the bony plates of the sternum and the spine. It is not strange then that it frequently becomes contused when a patient receives a crushing injury of the chest. This is particularly true of the driver of an automobile who is thrown violently against the steering post which drives the sternum almost into contact with the spine. Contused heart muscle, like any other badly bruised muscle, becomes suffused with blood under sufficient tension to obliterate the capillary blood supply and results in weakness of the muscular wall. In some cases actual necrosis of the heart muscle has been observed to occur.

This contusion of the heart muscle is therefore comparable in every respect to a coronary occlusion and must be treated in precisely the same manner.

The difficulty lies in its recognition because it does not necessarily give rise to any obvious symptoms or signs until rupture or failure takes place. The best rule to follow is to suspect all cases of crushing injury of the chest of having cardiac contusion, and to obtain an immediate electro-cardiogram for a baseline. As in coronary occlusion, abnormal tracings may not be observed on the original electrocardiogram but they will appear in a *second electrocardiogram* which is made seventy-two hours later and compared with the first. The baseline electrocardiogram is important because persons with old and healed coronary thromboses are not immune to automobile accidents and a single tracing may be misleading.

When cardiac contusion is demonstrated, the patient is treated exactly as he would be following a coronary thrombosis, and for the same length of time.

3. Ruptured Diaphragm

A child struck or run over by an automobile may have developed such a high intra-abdominal pressure as to tear his diaphragm loose from its attachments or develop a rent in its dome, with the extrusion of abdominal contents into one hemithorax or the other. It is prudent therefore, to *listen* to a chest which is opaque to x-ray and dense on physical examination to detect the tell-tale tinkle of intestinal sounds which may indicate the presence of intestines in the thorax. Limited air-fluid levels within the chest should make one suspicious of the presence of a stomach or a colon when reviewing the x-ray films. Needless to say, the insertion of a needle or trochar into any portion of the gastro-intestinal tract in the chest is likely to lead to unwelcome complications.

The sooner such a diaphragm can be repaired the better because of the need of restoring respiratory function and because it is much simpler to reduce such a hernia before fibrous adhesions have had an opportunity to form.

4. Ileus

Acute dilatation of the stomach or ileus is a relatively frequent complication following major chest injury, particularly if the patient has passed through a period of relative anoxia. This complication should be particularly suspected if a patient who has otherwise been doing well suffers a fall in blood pressure, shows evidence of clammy perspiration, or vomits copious watery material. The abdomen need not be distended visibly but percussion will usually show a tremendously large bubble of air in the stomach. The shock-like state caused by this acute dilatation of the gastro-intestinal tract can be quickly reversed by the simple use of a Wangensteen suction apparatus. With Wangensteen and rectal tubes in place, intestinal stimulants such as physostigmine can then be used.

5. Atelectasis

Atelectasis of a lobe or lung can be expected to occur in crushing injuries of the chest if for any reason the chest wall has not been stabilized or the patient fails to evacuate his secretions. Occasionally a single bronchoscopic aspiration of secretions will correct the atelectasis and tide the patient over until he can evacuate secretions under his own power. But if bronchoscopy is not readily available and if atelectasis recurs even when a bronchoscopist is nearby, it is safer to resort promptly to a tracheotomy.

6. Interstitial Emphysema

The complication of air leaking under the muscles and skin of a patient is dramatic and distressing but seldom serious. Ordinarily interstitial emphysema will occur most readily when the lung is already adherent to the chest wall and the puncture leads directly into the submuscular tissues. Only rarely will such an emphysema developing through a chest wall produce actual distress in breathing. Should this occur, a simple incision in the jugulum will permit the egress of air sufficiently to relieve the patient's distress. The lung leak almost invariably seals itself over in 24 to 72 hours and the interstitial emphysema absorbs gradually into the blood stream.

One exception to this is the emphysema which originates in the mediastinum due to rupture of the trachea or esophagus, in which case the interstitial air will appear first at the jugulum and then spread out over the neck and shoulders. The mediastinal emphysema can usually be detected on x-ray films. The rupture of trachea or esophagus will require immediate thoracotomy with repair of the ruptured organ.

SUMMARY

In the treatment of crushing injuries of the chest certain basic considerations must be entertained and appropriate measures carried out in all cases. Stabilization of the chest wall; relief of pain by intercostal nerve injection; provision for the removal of secretions from the tracheo-bronchial tree by coughing or tracheotomy; and the use of broad coverage antibiotics are all essential.

Auxiliary measures such as the use of oxygen, combating shock with blood transfusions, and thinning mucoid secretions with expectorants are to be carried out.

The six major complications which are most likely to be encountered consist of pneumothorax, with or without blood in the pleural cavity; cardiac contusion; ruptured diaphragm; ileus; atelectasis; and interstitial emphysema. The management of each of these complications and the method of their detection are described.

In the paper as delivered, illustrative cases are demonstrated with the use of lantern slides.

Cardiac Arrest

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SURELY, CARDIAC arrest constitutes one of the greatest surgical emergencies. There appears to be an increase in incidence of this condition and there has been a great interest shown in this subject during the last few years. Whether this is due to the increase in the number of major surgical cases now being done or to a change in anesthesia, is hard to tell. Cardiac arrest may occur during any operative procedure and with any type of anesthesia. It behooves every surgical team to have in mind a procedure to follow in case cardiac arrest should occur in one of their patients. Unless such a plan has been made previously, the treatment is not likely to be adequate at the time[4].

Cardiac arrest is a poor term to use in describing the syndrome under discussion. Acute circulatory failure more clearly defines the situation. We refer to this clinical entity when blood pressure, pulse, and cardiac sounds are not discernible. This may be due to a) ventricular fibrillation, b) cardiac arrest or stand still, c) extremely slow, idioventricular rhythm due to AV block, d) coronary occlusion, e) pulmonary embolus, f) or any of a number of circulatory catastrophes, such as a ruptured aneurysm or massive hemorrhage due to other causes.

Since the restoration of an adequate circulation depends upon a) adequate blood volune, b) adequate circulation (either spontaneous or artificial), c) physiologically adequate heart, d) physiologically adequate lungs, e) adequate oxygenation, and f) vital centers and organs sufficiently preserved to be capable of adequately regaining function, it is evident that such conditions as massive coronary occlusion, pulmonary embolus, and massive uncontrolled hemorrhage should be eliminated from this discussion.

It behooves us in a discussion of cardiac arrest to be cognizant of the fact that prophylaxis is of equal importance. There are certain groups of conditions which predispose to the development of cardiac arrest and render it almost futile to try resuscitation in such patients developing this condition. The following groups of patients should not undergo major elective surgery:

1. No patient with a recent coronary occlusion, (within two or three months).
2. No patient in intractable congestive failure.
3. No patient with active myocarditis.
4. No patient with chronic uncontrolled arrhythmia.
5. No patient with sub-acute bacterial endocarditis.
6. No patient with severe aortic stenosis with anginal syndrome and a low pulse pressure.
7. No patient with frequent or intractable angina.
8. No patient having uncontrolled thromboembolic phenomena.
9. No patient with severe pulmonary fibrosis.

This selection and evaluation of patients for surgery is more than an attempt to achieve a good operative mortality. All of the above conditions actually predispose to cardiac arrhythmias and impose the knowledge upon the surgical team that the very best treatment for cardiac arrest is probably useless in these cases. In emergency surgery, the condition will have to be met as it arises, and no one could possibly censure the selection of a patient for emergency surgery, who has undergone a recent coronary occlusion, if the surgery was of such a nature as to be considered lifesaving. However, every patient should be removed, if possible, from the above listed attendant dangers and congestive failure should be treated vigorously, myocarditis controlled, if possible, arrythmias, either reverted to the normal sinus rhythmn or an efficient, slow, ventricular rate achieved. Some of these conditions (severe aortic stenosis and intractable angina) cannot be remedied and agreement should be reached between the surgical team and the internist as to premedication type of anesthetic.

Anoxia is perhaps the most important cause of acute circulatory failure and in any of its forms should be avoided or corrected. Premedication, which so severely depresses the patient as to produce hypoxia should be avoided. The opiates and barbiturates are the two classes of drugs which produce respiratory depression when in too large doses. On the other hand, secretions of the upper respiratory tract should be prevented by adequate dosages of atropine or scopolamine, in order to prevent anoxia resulting from respiratory obstruction due to the presence of secretions. This will aid in the prevention of dangerous reflexes, such as laryngeal spasm and bronchial spasm.

In all cases an anesthetic drug or an anesthetic technique should be selected which will preclude or eliminate anoxia. Two of the modern causes of anoxia are pentothal and curara. The barbiturates depress respiration and circulation and thus produce hypoxia. Pentothal is being used too often now and in too large doses. It should never be used without supplementation with inhalation drugs. These will reduce the necessary dose of pentothal and consequently, the depression. Respiration should be augmented or controlled if sufficiently depressed. The maximum dosage limit of pentothal or suvitol should be 1 gm., preferably ½ gm.

d-Tubocurarine may cause anoxia by restriction of respiration from its paralyzing effect or by the release of histamine leading directly to severe hypotension and/or bronchospasm. Augmented respiration by intermittent positive pressure on the breathing bag will adequately ventilate the patient if paralysis is the cause. However, if a histamine release is the cause, intravenous isuprel in doses of ½ cc. 1:50,000 solution, intravenous orthoxine in dose of 50 mg., and/or antihistaminics intravenously will usually relieve the bronchospasm. Small doses of a vasopressor, such as 15 mg. oenethyl or 2 mg. vasoxyl, will raise the blood pressure in most instances to a satisfactory level. The new synthetic curara compounds which release no histamine should be used instead of d-tubocurarine. To mention a few—mytolon, mecostrin, flaxedil, methubine, syncurine, succinyl choline.

The obvious incompatibilities of cyclopropane with epinephrine (adrenalin), or pitressin (pituitrin), or levophed (levo arterenol, noradrenalin), or possibly calcium should be avoided.

The clinical syndrome of acute cardiac arrest may occur without warning and we must, therefore, be constantly on the alert for its occurrence in order to treat it in its incipiency. The anesthesiologist or anesthetist should be ever on the watch for acute circulatory failure. Very infrequently, if at all, does a heart stop between one beat and what would be the next. The circulation may fail rapidly, that is in a matter of 30 seconds to 2 or 3 minutes, but not in a split second. This is very fortunate for time is thus afforded for correction of the failure before the heart is actually in standstill. Simple measures at this time will restore an adequate circulation. We do not believe that a cardiac arrest occurs suddenly without warning signs. It is preceded by a change in cardiac rate or rhythm and/or a marked fall in blood pressure. Measures aimed at the restoration of circulation should be instituted at this time. When the condition progresses further, the pulse is not obtainable, there is no blood pressure and voluntary respiratory movements cease.

If a failing circulation is detected prior to actual cardiac arrest, the following measures should be instituted:

1. Administer procaine, in doses of 300 to 500 mg. (30 to 50 cc. of a 1% solution) intravenously by rapid injection.
2. Administer pure oxygen by mechanical inflation of the lungs, washing out the inhalation agents being used.
3. Place the patient in 10° to 20° Trendelenburg position.
4. Administer a vasopressor in a moderate dose, intravenously, such as ephedrine 25 mg., or vasoxyl 4 mg., or onethyl 25 mg., or desoxyephedrine 10 mg. Never use adrenaline as a vasopressor.

While these four steps are being carried out, the surgeon should observe cardiac activity if the chest happens to be open. If an abdominal operation is being performed, he should feel the abdominal aorta for pulsations.

Response to these measures is usually prompt but in case of ineffectiveness, further resusitation should be instituted without delay. If immediately available, a long spinal needle, not attached to a syringe, may be inserted by the surgeon in the left fourth intercostal space just lateral to the sternum. This maneuver will tell whether or not the heart is actually beating since the needle will be moved by cardiac activity. In rare instances, it may provide the stimulus to start cardiac activity. However, if the needle is not immediately available, time should not be lost in attempting to find one. In from three to five minutes, irreversible cerebral changes will occur. If the patient has been hypoxic before the onset of cardiac arrest, which is usually the case, permanent cerebral damage may be obtained in less than this time. Oxygen is administered by mechanical inflation of the lung during the entire period of resuscitation.

If the heart is in standstill or there is doubt as to its activity the chest should be opened immediately. We do not think that transdiaphragmatic cardiac massage is efficient. Direct transpleural massage should be carried out. The chest is opened by making an incision over the left, fourth, intercostal space, from a point just lateral to the sternum to the midaxillary line. Time should not be lost for an antiseptic preparation of the skin and draping. Do not try to ligate vessels at this time. The chest might be entered at one or two strokes of the knife. The fourth and fifth costal cartilages can be cut with a knife just lateral to the sternum. Observe the heart. If in standstill, massage by rhythmic compression. The pericardium should then be opened since this affords more efficient compression. With the chest and pericardium opened, the surgeon can usually carry out cardiac massage with one hand. If the heart is rather large in proportion to the surgeon's hand, it may be compressed against the posterior surface of the sternum, or it may be necessary for the surgeon to use two hands, one posterior to the heart and one anterior to the heart. The heart should be firmly compressed from 40 to 60 times a minute. It should be released completely between compressions, or massages, to permit filling. It has been definitely proved that if such manual systole is carried out conscientiously and efficiently at this rate, a blood pressure of from 65 to 85 mm. of mercury may be obtained. Given a normal heart, that has only been arrested for a period of two or three minutes, cardiac massage alone, with sufficient oxygen intake, will prove to be adequate for resusitation. Cardiac stimulants should be used if the spontaneous beat is not resumed in two or three minutes. Small doses of epinephrine, 1:1000, varying from 0.2 cc. to 0.3 cc. should be injected directly into the left ventricle. Manual systole should be carried out for a period of three or four minutes after each dose of epinephrine before giving more. Larger doses of epinephrine should be avoided for fear of starting ventricular fibrillation. Kay and Blalock have found calcium chloride to be effective as a cardiac stimulant in cases where epinephrine has failed. It may be used in a 10% solution in doses from 2 cc. to 4 cc. given directly into the left ventricle.

In case ventricular fibrillation has been noted when the chest is opened, the heart should be massaged for two or three minutes until it is no longer dilated and cyanotic. After this, defibrillation should be carried out. Electric shock is the best method of defibrillation. A current varying from 110 to 160 volts may be applied for from one third to one second at a time. One or two of these shocks usually suffice to stop fibrillation. In case this should fail, a series of shocks may be carried out; five or six shocks in one series. If the operating room is not equipped with defibrillating apparatus, one may be improvised by taking the female end off of an extension cord and attaching the loose wires to two flat surface retractors. The handles should be well insulated with a dry pad and the surgeon should wear two pairs of gloves. The electrodes should be placed on opposite sides of the heart, with the flat side of the electrode (retractor) in contact with the ventricles over a large area. A small area of contact will cause a burn. The male end of the plug should be inserted directly into the wall socket and immediately withdrawn. All these measures should be continued until resuscitation has been successful, or it becomes evident that the patient is not going to respond. This may mean carrying out these procedures for a period of one or two hours.

After normal cardiac rhythm has been resumed, the pericardium should be closed tightly enough to prevent herniation, but loose enough to provide adequate drainage. The chest should be closed in layers. A No. 26 or No. 28 French catheter is placed in the chest until after closure through which air and fluid are aspirated and the lung thus reexpanded. The catheter is then removed. After closure an x-ray of chest should be made to determine if contralateral pneumothorax was produced during cardiac massage.

In the treatment of cardiac arrest, several "do nots" have been laid down by Dr. Claude Beck. These are as follows:

1. "Do not listen for a faint heart sound."
2. "Do not wait for an electrocardiogram."
3. "Do not inject epinephrine through the chest."

4. "Do not dilate the rectal sphincter."
5. "Do not give mechanical respiration by compression of the chest."
6. "Do not give a blood transfusion."
7. "Do not give an intra-arterial transfusion."

These "do nots" are important. They do not produce harm, but in carrying out these procedures, valuable time is lost. In this condition the surgical team cannot afford to lose time. They must be prepared. SPEED is the most important of the analeptics. Therefore, since veins collapse in the blood pressureless state, causing venepuncture to be difficult and time consuming when delay may be fatal, a freely flowing intravenous through a large calibre needle should be running before the induction of anesthesia in every instance. This is strongly recommended. The volumes of 1 per cent procaine advocated, rapidly injected, will reach the heart even in the absence of an intact circulation.

Mechanical, positive pressure inflation of the lungs is most effectively carried out through an endotracheal tube, and since time is precious, the routine use of such an airway is strongly recommended. The expansion and collapse of the chest alone, mechanically, causes a sluggish flow of blood through the lungs and heart, resulting in some degree of oxygenation of the heart. Trendelenburg position will channel whatever circulation there is to the vital organs: heart, lungs, and brain.

The analeptic drugs previously mentioned, should be in sterile syringes and at our fingertips before induction. The time lost in finding, unwrapping, and filling syringes with these drugs may result in failure.

Every well-equipped surgical suite should have in its armamentarium a cardiac defibrillator.

If the diagnosis is made immediately after the onset of true cardiac arrest in a patient without pre-existing heart disease, the prognosis is good. However, one must keep in mind that other conditions might cause sudden failure in circulation. The one problem confronting the physician after cardiac arrest has been encountered and successfully terminated, is the knowledge that certain complications may be expected. Depending upon the depth and duration of shock, lower nephron nephrosis is not an unreasonable sequel. Depending on the degree of anoxia cerebral degeneration and hyperthermia should be anticipated. By the same token, and possibly with the additive effect of stasis, cerebral thrombosis, coronary thrombosis, pulmonary edema, and congestive heart failure have all been reported, and can be logically accepted as part and parcel of the "post-arrest" state. These conditions are, of course, handled with the usual therapeutic measures. The ultimate prognosis may be judged by the amount of cerebral degeneration, the degree of fever, or the persistence of anuria.

SUMMARY

Cardiac arrest, more properly termed acute circulatory failure, is diagnosed when blood pressure, pulse, and auscultatory sounds of the heart are not discernible and may be due to ventricular fibrillation, cardiac standstill, extremely slow idioventricular rhythm due to AV block, coronary occlusion, pulmonary embolus, massive hemorrhage, ruptured aneurysm, etc.

Acute circulatory failure is prevented by not subjecting those with recent coronary occlusion, congestive failure, active myocarditis, chronic uncontrolled arrhythmia, subacute bacterial endocarditis, aortic stenosis, intractable angina, severe pulmonary fibrosis, or thromboembolism to anesthesia and surgery. Anesthetic management which avoids anoxia will help prevent cardiac arrest. Thus large doses of curare or barbiturates should not be used. Respiration must be augmented or controlled to provide adequate oxygenation.

Incipient failure is treated with 200 to 300 mg. procaine intravenously, pure oxygen, Trendelenburg position, small doses of vasopressors. If response is not immediate, thoracotomy and cardiac massage follows without delay or hesitancy.

Fibrillation is converted to concerted contraction by electric shock. The asystolic heart is stimulated to regain rhythmic spontaneous contraction by injecting small doses of epinephrine or calcium chloride.

A favorable outcome depends on adequate blood volume, adequate spontaneous or manual systole, physiologically adequate heart and lungs, adequate oxygenation, and responsive vital centers and organs. Prognosis hinges on the degree of cerebral degeneration, fever, and anuria.

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Principles of Treatment of Infectious Diseases of the Lids, Conjunctiva and Cornea*

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INTRODUCTION

THE RAPID development and introduction of powerful new drugs in the past few years has resulted in the production of many miraculous cures of infectious diseases. However, in spite of these miracles, indiscriminate use of the drugs has resulted in many disappointments, failures and complications. The reason for these failures and complications becomes apparent when several facts are understood. The first of these is that as yet no drug has been developed which is universally effective against all infectious agents. Second, some of the newer drugs effective against a certain strain of organism eventually lose their effectiveness because of the development of resistance by the organism to the drug. Third, some of the new drugs actually contain substances which are growth-stimulating factors or virulence-increasing factors for certain types of infectious agents. Finally, some of the new drugs are not tolerated by certain patients because of idiosyncrasy or allergy. Therefore, it seems to be appropriate to review present methods of treatment of infectious diseases of the eye in the light of long-established basic principles.

The general principles upon which effective treatment of infectious diseases of the eye is based may be listed as follows:

1. Determination of the cause of the infection.
2. Selection of an effective therapeutic agent.
3. Selection of the proper route of administration of the drug.
4. Adequacy of dosage and duration of treatment.
5. Proper selection of palliative and supplementary methods of therapy.

DETERMINATION OF THE CAUSE OF THE INFECTION: Diseases of the lids, conjunctiva and cornea offer one of the best opportunities for accurate diagnosis and determination of specific causative factors. Exact diagnosis often is clear from an evaluation of clinical signs and symptoms, but frequently the differentiation between chemical irritation, infection and combinations of these factors becomes obvious only by bacteriologic examinations.

Examination of secretion smears and scrapings offers inestimable aid in diagnosis, prognosis, and selection of immediate treatment. Such preparation should be made in duplicate so one may be stained by Gram's method and one by either Wright's or Giemsa's stain. The Gram-stained preparation differentiates bacteria into Gram positive, blue staining, or Gram negative, red staining, rods or cocci. Either Wright or Giemsa's stain give cellular differentiation and show the type of reaction. In general bacterial infections produce a polymorphonuclear reaction, virus infections cause a mononucleosis, and allergy causes an eosinophilia or a basophilia. Inclusion bodies also are stained by Wright's and Giemsa's methods.

Isolation of bacteria by culture methods is essential for the most effective selection of therapy.

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SELECTION OF THE THERAPEUTIC AGENT: Unfortunately the publication of charts which show the average broad activity of a given drug has tended to obscure the fact that certain strains of a given type of organism may be partially or completely resistant to the drug although the majority of strains of that organism may be favorably affected by it. For example, although penicillin is effective in the treatment of the majority of gonorrheal infections, strains of Neisseria gonorrhea are partially resistant and a few completely resistant to penicillin therapy. Numerous other examples of this type could be cited. When such a condition exists and the drug is used for treatment of that particular infection over a period of time the frequency of the appearance of infections caused by the resistant strain will increase. For example, when penicillin was first introduced approximately 5 per cent of the strains of staphylococci isolated from ocular infections were found to be resistant to penicillin. During the intervening years the number of resistant strains of staphylococci have gradually increased so that now better than 70 per cent of the strains of staphylococci isolated from ocular infections are resistant to penicillin therapy. A similar course of events can and must be expected in other infectious processes. However, it must be pointed out here that this is not an argument against the use of penicillin therapy in those cases in which the drug is effective. It is simply an example of the importance and the necessity of proper selection of therapeutic agents. Therefore, whenever possible the infectious agent should be isolated and tested for susceptibility to the various drugs which have been shown on a broad basis to be effective on the average in this particular type of infectious process.

Several methods have been developed for the determination of the effectiveness of the newer drugs against specific organisms. Most bacteriology laboratories are now equipped to make these determinations. The most commonly used techniques are the plate disc method and the serial dilution method. Either method is sufficiently accurate in the common infectious processes for the selection of proper therapeutic agents. However, in certain special types of infections special methods may be necessary. In most cases the information may be obtained within 48 hours; but under special circumstances more rapid methods may be available.

If, as frequently happens, several drugs are reported by the laboratory to be effective against the offending agent the physician then must make a selection from this group of drugs. This selection is based upon the type of infection, whether superficial or deep, the route of administration to be used and finally upon consideration of the patient's previous experience with the drugs.

Inasmuch as this method of selection of the specific or rapidly effective therapeutic agent requires 24 to 48 hours time one is always faced with the necessity of selection of immediate or interim methods of treatment. Even the selection of immediate treatment should be based upon all available information as to the causative agent of the infectious process. The clinical manifestations providing a basis for a clinical diagnosis together with the results of examination of secretion smears or scrapings is the method of choice. In general, in the moderate or mild infectious processes it is probably better to select a chemotherapeutic agent such as one of the mercurial antiseptics or one of the sulfonamide preparations. In very severe infectious processes, perhaps one would be justified in selecting one of the so-called miracle drugs on an empirical basis until the information is available from the laboratory.

SELECTION OF THE ROUTE OF ADMINISTRATION: The route selected for administration of the drug of choice may determine the ultimate effectiveness or the speed of effectiveness of treatment. Mild superficial infections may be controlled by topical applications, but deep infections and severe lesions may require oral or parenteral administration of the drug, and chronic or recurrent infections may require immunization therapy.

In treating infectious lesions by topical applications the drug must be applied often enough to maintain an effective local concentration. In many instances, aqueous solutions are adequate but it must be kept in mind that an aqueous solution remains in contact with the conjunctiva and cornea for less than two minutes after an instillation. Effectiveness of absorption of a drug can be increased by the preliminary use of a detergent or by incorporating a detergent in the aqueous solution. More prolonged contact can be obtained with aqueous solutions by adding methyl cellulose in one-half to one per cent concentration. The increased viscosity of such a solution will keep it in contact with the conjunctiva for six to seven minutes. This type of medication does not leave the objectionable feature of blurring of vision as occurs with ointments and therefore is advantageous for daytime use. However, ointments remain in contact with the conjunctiva for approximately ten minutes.

Inadequacy of the dosage both in amount and frequency of administration may result in adaptation of the organism to the drug being used so the strain may become resistant or at times more virulent under administration of the drug. Therefore, in topical applications strong concentrations of the drug should be applied at frequent intervals. For example, when aqueous solutions are used three times a day, the total effective exposure time amounts to 6 minutes or less out of the entire 24 hours. The addition of methyl cellulose to an aqueous solution to increase the viscosity would increase the exposure time only two or three minutes, or the administration of the drug in an ointment form would increase the exposure time only approximately 4 or 5 times. Therefore the topical application of a drug 2 or 3 times a day in an infectious process probably has very little effect on the course of the disease. Under these circumstances the majority of patients probably has very little effect on the course of the disease. Under these circumstances the majority of patients probably get well in spite of treatment. For this reason it is becoming increasingly popular to use methyl cellulose vehicles for the suspension of the drug and to use the drug every half hour to every hour during waking hours. Ointments used this frequently during the day cause considerable disturbance of vision; however, they are quite effective when used at night just before retiring. Under these circumstances the ointment and the medication remains in the conjunctiva much longer than during the day and tends to prevent drying of secretions on the lid margins and agglutination of this material in the lashes.

In oral or parenteral administration, the drugs should be given in sufficient amount and at short intervals to maintain an effective blood level at all times until the infection has been eliminated.

Perhaps at this point it might be well to mention a word of caution about the use of combinations of streptomycin and para-aminosalicylic acid for the treatment of tuberculous lesions or penicillin and the simultaneous administration of one of the sulfonamides for the treatment of gonorrheal infections, these combinations seem to be more effective than when one of the drugs is used alone. However, in the majority of instances a combination is no more effective than when one drug is used alone and in some instances the combination is deleterious. Even in cases of a mixed infection it is still preferable to use one drug in place of a combination.

Palliative and supplementary therapy: Palliative and supplementary methods of treatment frequently are of as much practical importance to the patient as specific treatment of the infection itself. However, in selecting these one must be on the alert to avoid measures which would be harmful or of no benefit to the patient.

Irritation and discomfort are frequent accompaniments of superficial infections of the lid and conjunctiva with pain being more characteristic of deeper infectious processes. Topical anesthetics should not be employed in these situations because they cause lowering of resistance to the infection locally and delay in healing. Therefore, when necessary, oral sedation or analgesia should be employed. Frequently the patient may be made more comfortable and such medication unnecessary by the judicious use of either hot or cold compresses.

Occasionally in severe conjunctival infections the patient complains of photophobia. This always indicates superficial involvement of the epithelium of the cornea and reflex iris irritation. This, of course, is most noticeable and quite prominent in active ulceration or infection of the cornea. At times it may be so severe that oral administration of sedatives or analgesics may be necessary; however, in the majority of instances photophobia may be controlled completely by adequate mydriasis or cycloplegia. Therefore, in all cases of corneal involvement cycloplegia should be maintained until the lesion has healed.

In external infections of the eye dressings are not only unnecessary but also are deleterious by preventing the free flow of secretions from the eye they tend to make the infection worse.

Neither cortisone nor adrenocorticotrophic hormone have a place in the treatment of acute infectious diseases of the eye. Neither of these drugs has any beneficial effect on an infectious agent. On the contrary, in some instances they actually increase the virulence of the infectious agent. When used their action is confined to the partial or complete suppression of the defense mechanisms of the body. Because of this they have a very definite place in the treatment of allergic and noninfectious inflammatory lesions; however, when used in acute infectious processes they break down the defense mechanism which tends to localize the infectious process and thus will permit the spread of an infection. In addition, in some instances, particularly in virus infections, they may tend to increase the virulence of the organisms. Therefore, at present they should not be used either alone or in conjunction with antibacterial agents in the treatment of acute infectious diseases of the eye.

Fever therapy, on the other hand, may be a very important adjunct in corneal inflammatory lesions. Since the demonstration that fever therapy stimulates some increased hormonal activity one might assume that fever therapy and ACTH or cortisone therapy could be used interchangably. Such an assumption, howevre, would overlook very important differences in these two forms of treatment. The primary and essential reaction produced by fever therapy is specific and nonspecific stimulation of the various defense mechanisms of the body. This, of course, is in direct contrast to the reaction produced by hormonal therapy. The stimulation of hormone secretion by fever therapy is coincidental and sufficient only to limit the shock produced by the fever therapy. Therefore, fever therapy may be indicated in situations in which cortisone and ACTH therapy may be contraindicated. One of these situations would be in infectious diseases of the cornea.

Finally, there are several other factors which require attention. In frequently repeated infections, such as styes, one should investigate the possibility of an unrecognized, low-grade general disease being responsible for lowered resistance. In prolonged or chronic infections of the conjunctiva the nasolacrimal passages should be investigated for obstruction. In cases of unilateral conjunctivitis the lid margins should be examined for virus tumors (molluscum contagiosum and common wart) and the nasolacrimal passages should be investigated.

In chronic conjunctivitis and blepharitis marginalis the meibomian glands should be examined carefully for dysfunction.

All patients being treated with the newer drugs should be watched carefully for signs of idiosyncrasy, irritation and drug sensitivity.

SUMMARY

In summary, since as yet no universally effective drug has been found for treatment of infectious diseases the following general principles should be followed:

1. The cause of the infectious process should be determined and isolated in every case possible.
2. The organism so isolated should be used to determine the most effective therapeutic agent.
3. The route of administration of the selected drug should be chosen on the basis of the clinical type of infection and the most effective therapeutic agent.
4. An adequate dosage of the drug should be administered in order to maintain an effective contact between the drug and the organism for a long enough period of time to completely eliminate the infection.
5. Supplementary and palliative methods of treatment should be so selected that they promote the comfort of the patient without diminishing the effectiveness of the primary method of treatment.

YOUR OLD JOURNALS FOR INDIA

A letter from a doctor in a mission hospital in India requests good medical books and journals and secondhand surgical equipment. The few books that are for sale are very expensive and the hospital is unable to pay for them. Three paragraphs from his letter reads:

"The ayurvedic and unani systems of medicine are very troublesome competitors to allopathic system here, and proper equipment and medical literature are highly essential for the successful management of the hospital.

"In the light of the above circumstances, I request you and the sympathetic members of your society to send me your used medical journals with all available backward copies, medical books, reprints of articles and other useful medical literature, and also secondhand surgical instruments, medical appliances, laboratory equipment, etc., so that many of our poor patients may directly and indirectly benefit from them.

"This act of kindness and charity by the members of your society will ever be remembered which lapse of time can not wipe away from our memory."

T. K. Thomas, M.D.
Hon. Medical Superintendent
St. George's Mission Hospital
Punalur, P. O. Travancore
S. India.

Struma Lymphomatosa (Hashimoto's Disease)

W. HOWARD KISNER, M.D.*
Natchez, Mississippi

SEVERAL YEARS ago the author became interested in chronic thyroiditis because of the relative infrequency with which the diagnosis of chronic thyroiditis was established prior to thyroidectomy. The correct pre-operative diagnosis of chronic thyroiditis was made in only about 23.5 per cent of the total number of cases of chronic thyroiditis seen at the Lahey Clinic in Boston according to Marshall.[1] This is significant because that particular clinic is especially noted for its interest in thyroid disease. After practicing surgery in Louisiana and in Mississippi it became apparent that the incidence of chronic thyroiditis is much greater, as compared to the total number of surgical thyroid cases in this part of the south, than in the eastern and the western part of the United States. In 1949 the author et al[2] made a study of the cases of chronic thyroiditis at the Southern Baptist Hospital in New Orleans for the period from January 1, 1945, to April 1, 1949, with a review of all the slides on surgical specimens of the thyroid gland. This work was done in Cooperation with Haughton and Reganis and published in the *New Orleans Medical and Surgical Journal*[2]. The total number of surgical thyroid specimens examined was 222. Of these 8.11 per cent were classified as chronic thyroiditis. Out of this group there were nine cases of Hashimoto's Disease, an incidence of 4.05 per cent, three cases of Reidel's struma, and six cases classified as chronic non-specific thyroiditis. A review of the record room statistics in 1949 of the Touro Infirmary[2] in New Orleans, Louisiana, revealed an incidence of 8 per cent chronic thyroiditis out of 612 operated thyroids. A review of 172 thyroidectomies performed by the Mahorner Clinic staff of New Orleans revealed an incidence of 4.06 per cent chronic thyroiditis.

These various studies revealed a marked prevalence of chronic thyroiditis in the Gulf States as compared to a report by Marshall et al[1] from the Lahey Clinic of .75 per cent chronic thyroiditis out of 25,000 thyroidectomies. Recently Blake et al[3] reported a 3.3 per cent incidence of Hashimoto's Disease from Los Angeles, California. The only high incidence of chronic thyroiditis that compares with the high incidence found in the Gulf States is that reported by Chesky et al[4] from Halstead, Kansas. This group reported an incidence of 8.3 per cent chronic thyroiditis.

The incidence of struma lymphomatosa among the thyroidectomies performed by the surgery department of the Natchez Medical Group in the past few years is 8.16 per cent.

Etiology

The etiology of struma lymphomatosa is unknown. The fact that struma lymphomatosa occurs almost exclusively in women has led to some conjecture that the influence of estrogenic hormones may play some role in this disease process. Graham[5] has objected to the use of the term chronic thyroiditis in describing Hashimoto's Disease and states that this condition is not a true thyroiditis but a local manifestation of a systemic disease.

Chesky and his co-workers[4] in a recent paper reported their results of Hashimoto's thyroiditis with the use of supravital stains. These authors believe there is excess stimulation of the thyroid gland by thyrotropic hormone. This excess stimulation by thyrotropic hormone alters the chemical make-up of the colloid in the gland in such a manner that phagocytic cells are attracted into the lumen of the acini and there these cells engulf the colloid material. The phagocytic cells then migrate from the lumen of the acini into the struma of the gland and there disintegrate spilling the colloid material into the struma. This colloid material, according to the authors, undergoes additional chemical change by ingestion into the phagocytic cells and this additional alteration in chemical structure has marked attraction for lymphocytes.

Recent work by Blake and Sturgeon[3] focuses attention on the hypoplasia and degeneration of the epithelial elements in struma lymphomatosa.

Pathology

The gross pathological appearance of the thyroid gland in struma lymphomatosa exhibits a diffuse regular enlargement of both lobes with a nodularity of the surface which is so marked at times that the usual pre-operative diagnosis is multinodular goiter. The cut surface of the gland is generally a pale white in color with occasionally a brown to yellow shade. On the cut surface the gland appears divided into irregular lobules by fine fibrous trabeculae. The capsule of the gland is usually intact and free of pericapsular adhesions. As a rule there is present no normal thyroid tissue grossly and no evidence of necrosis or hemorrhage. On palpation the thyroid gland has a rubbery consistency and is much firmer than the usual multinodular goiter.

---

*From the Surgery Department of the Natchez Medical Group.

Microscopically there is involvement of the entire gland which consists of a diffuse infiltration of lymphocytes. Numerous lymph follicles with germinal centers are present. The acini are small with oval to slit like lumens. As previously noted the epithelium of the acini exhibits hypoplasia and also degeneration. Occasionally the lumen of an acinus is filled with a homogenous mass which contains what appears to be degenerating nuclei. However, larger acini containing colloid are present which contain low cuboidal epithelium showing various stages of degeneration. Numerous large pale polygonal cells suged in acini, chords, and sheets. The cytoplasm of ed inacini, chords, andsheets. The cytoplasm of these cells usually takes an intense eosin stain. The nuclei of these cells vary in size and shape, are eccentrically placed, contain fine chromitin and one or two small nucleoli.

Fibrosis is present as a delicate enterlacing structure and does not assume the dense sclerotic appearance that is associated with Riedel's struma. One of our cases showed rather marked fibrosis for Hashimoto's disease and the cut surface almost approached the hardness of an early Riedel's struma. (see Figure 1) The blood vessels rarely show the changes associated with Riedel's struma.

Symptoms

The chief symptoms in struma lymphomatosa are a diffuse enlargement of the thyroid gland, tightness in the neck and sense of pressure in the neck with occasional or intermittent hoarseness. The hoarseness may be marked at times. The hoarseness in Hashimoto's disease is not easily explained. It does not appear to be on a basis of any inflammatory change because as previously stated struma lymphomatosa is not a true thyroiditis and pericapsular adhesions are either minimal or entirely absent as compared to the dense adhesions one encounters in Riedel's struma. Occasionally these individuals will exhibit the symptoms of mild to severe hypo-thyroidism.

Diagnosis

The pre-operative diagnosis of struma lymphomatosa is not always easy.

In our four cases of struma lymphomatosa the correct pre-operative diagnosis was made in two cases, a diagnosis of multinodular goiter, which is the most common error, was made in one case and a diagnosis of adenoma was made in the fourth case. If the examiner keeps chronic thyroiditis in mind while taking a history and during the examination the diagnosis of struma lymphomatosa should not be too difficult. A history of pressure symptoms in the neck and hoarseness should make one suspect the presence of Hashimoto's disease. This condition almost always occurs in women, usually of middle age. There is a bilateral symmetrical enlargement of the gland and the surface on palpation has a feel that has been adequately described as "pebbly-feeling". The gland is firm to the examining fingers and this should indicate the possibility of thyroiditis. This so called "pebbly-feeling" of the gland is the reason the diagnosis of multinodular goiter is a frequent error. The presence of symptoms of mild to severe hypothyroidism should also lead one to suspect chronic thyroiditis.

The use of the Silverman needle for biopsy of the thyroid gland has been recommended by Crile.[6] The author has had no experience with this technique.

Treatment

The treatment of struma lymphomatosa is bilateral subtotal thyroidectomy. This procedure affords relief of the pressure symptoms which at times are a prominent feature of this condition. The hoarseness, as a rule, is not affected as a result of the operation and many of these patients continue to have bouts of hoarseness postoperatively. The operation of subtotal thyroidectomy also serves to rule out the possibility of malignancy which one must consider in any patient with a firm gland of the consistency of the thyroid in struma lymphomatosa.

These patients must be carefully followed after operation as the incidence of hypothyroidism following surgery is high. All four of our cases developed varying degrees of hypothyroidism which in all cases was controlled with thyroid extract.

There were no nerve injuries in our series of cases and one patient had transient hypo-parathyroidism following surgery.

Case Reports

Case No. I: The patient is a 24-year-old female who gave a history of having had a goiter since the age of 18. During the past six years she had noticed no change in the size of the goiter. For the past five years the patient states that she felt run down and tired. She was not able to relax and felt as if her nerves were on edge at all times. During this period of time she had occasional bouts of hoarseness which she attributed to excessive smoking. For the past six months she noticed a tightness in her throat which she had not previously been aware of. She also had noticed coarseness and dryness of her skin for the past year.

Examination of the thyroid gland revealed a firm irregular thyroid that was enlarged equally in both lobes. The gland was much firmer than the usual multinodular goiter. On admission examination the patient exhibited no hoarseness, the skin was coarse and dry and suggestive of severe hypothyroidism although the patient was not obese. In contrast to the objective findings of hypothyroidism the patient was a very nervous, tense individual who was unable to relax during the examination. A BMR under sedation was reported as plus 40 but the ECG findings were reported as suggestive of the changes found in myxedema. A somnolent BMR under sodium pentothal anethesia was then done and a BMR of minus 32 obtained.

At operation the entire thyroid gland was found to be quite firm with a diffuse pale white appearance. There were no pericapsular adhesions and subtotal thyroidectomy was carried out after identifying the recurrent laryngeal nerve on both sides.

Because of the excess amount of fibrous tissue present in the gland there was some question at first of the disease process being Riedel's struma rather than Hashimoto's disease. (See Figure 1) The microscopic examination revealed the typical lymphoid infiltration of Hashimoto's disease with the exception of more fibrous tissue throughout the gland than is ordinarily encountered in struma lymphomatosa.

Case No. II: This patient is a white female, age 36. She states that she has known of the presence of a goiter for eleven years and has had bouts of hoarseness as long as she can remember. During the past eleven years there has been no appreciable change in size of this goiter. This patient also states that for several years she has known that she was hypothyroid. Several years ago her family physician discovered the BMR to be minus 21 and since that date the patient has been on thyroid extract.

On examination of the thyroid gland, the gland was found to be quite firm with nodular feel on palpation. Both lobes of the thyroid gland were enlarged and the impression on examination was that this represented a case of struma lymphomatosa. At operation a subtotal thyroidectomy was done. The gross appearance of the gland was a pale homogenous pink with a pebbly appearance to the cut surface of the gland. The gland was quite firm and it was the impression of the operator that this represented Hashimoto's disease. Post-operatively this patient was given thyroid, grains one-half daily.

The pathology report was struma lymphomatosa.

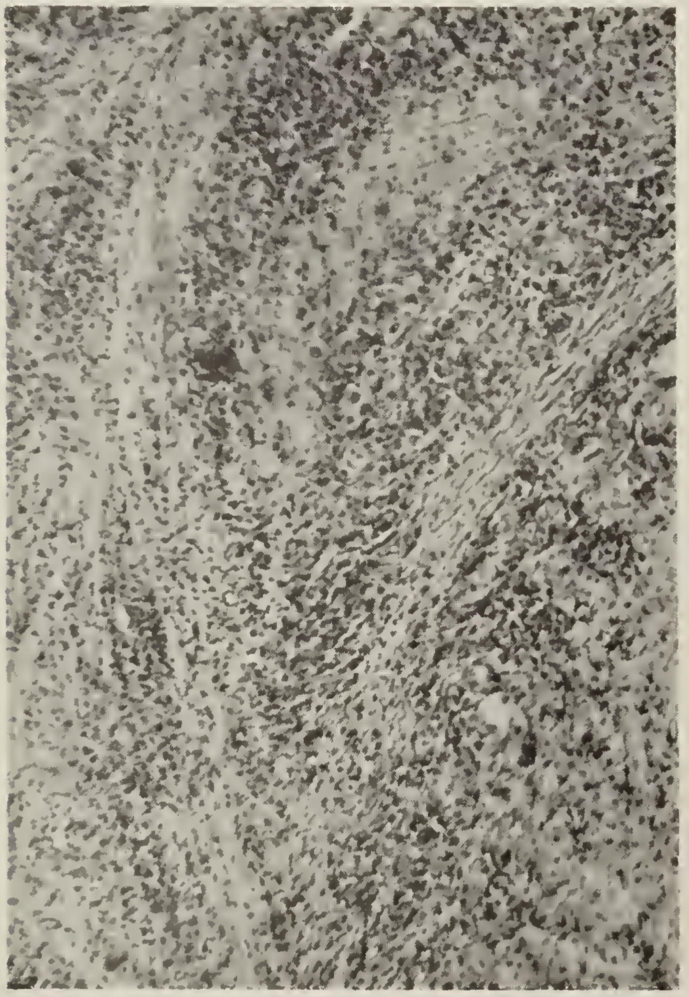

Figure I. Photomicrograph of thyroid tissue from Case No. I.

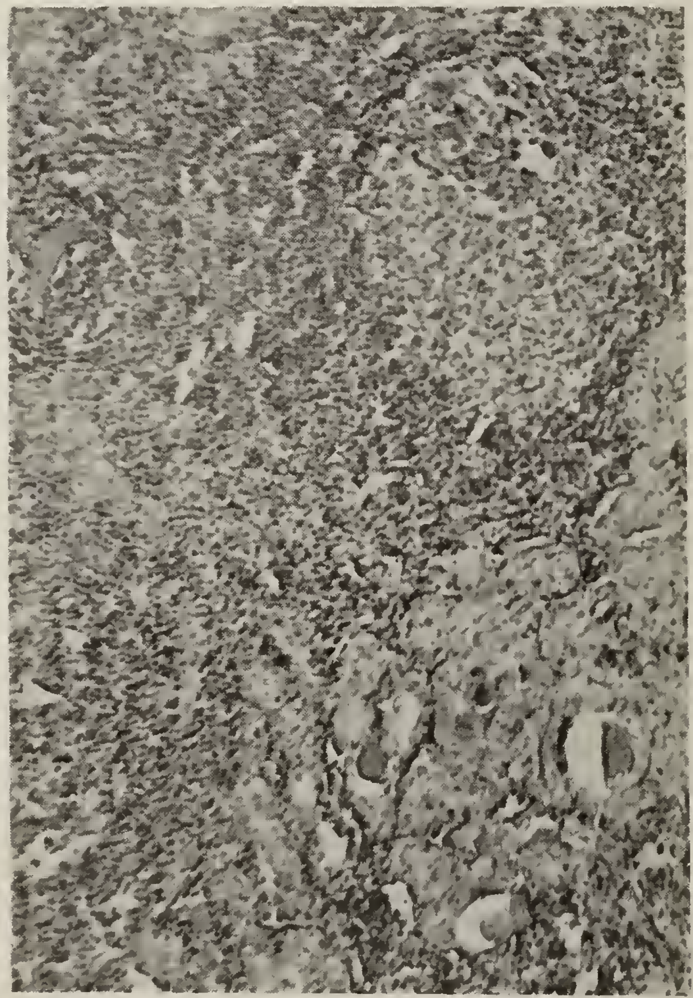

Figure II. Photomicrograph of thyroid tissue from Case No. III.

Case No. III: This patient is a 26-year-old female who states she has had an enlarged thyroid gland for the past five years. She also states that during the past five years she has had frequent bouts of hoarseness. This patient also attributed some of her hoarseness to excessive smoking. There were no symptoms suggestive of hypothyroidism in this particular case.

Examination of the thyroid gland revealed a rather nodular feeling thyroid gland and it was the examiner's impression that the right lobe was somewhat larger than the left. The preoperative diagnosis was multinodular goiter. The BMR test was within normal limits. A subtotal thyroidectomy was performed and at operation the thyroid gland was found to be equally enlarged on both sides and the cut surface of the thyroid tissue revealed a lobulated appearance with a yellow to pink color. Section into the gland revealed a homogenous firm somewhat rubbery yellow to pink tissue. The microscopic diagnosis was struma lymphomatosa. (See Figure 2). Postoperatively this patient developed signs of hypoparathyroidism with a positive Chvostek's test and positive Trudeau's test. The patient was given thyroid extract in dosage of one-half grain daily with calcium gluconate and vitamin D in large doses. The hypoparathyroid symptoms disappeared under calcium and vitamin D treatment and after several months all therapy with exception of thyroid extract was discontinued.

One and one-half years postoperative follow up revealed the patient to be in good condition but the continued use of thyroid extract in dosage of one-fourth to one-half grain daily was necessary.

Case No. IV: This patient is a 35-year-old white female who noticed a lump in the left side of her thyroid gland two years prior to her examination. She states that during the last year or so she has had frequent bouts of hoarseness. The patient states that she has had increasing nervousness and has noted that her children seem to get on her nerves more so than in the past. She has also noticed that she has gained weight in the past six months. A BMR test was minus 13.

Examination of the thyroid gland revealed a nodular left lobe of the thyroid gland and it was the examiner's impression that most if not all of the pathology was contained in the left lobe of the thyroid. The preoperative diagnosis was adenoma of the left lobe of the thyroid gland. A subtotal thyroidectomy was carried out because on exposure of the gland the goiter was found to involve both lobes with equal enlargement on both sides. The cut surface of the thyroid presented a gray to pink homogenous color with the gland presenting a lobulated appearance and a rubbery firmness on cutting. The impression on seeing the gross specimen was that this represented struma lymphomatosa. The microscopic examination was struma lymphomatosa. This patient was also given thyroid extract in dosage of one-half grains daily postoperatively and she has continued to take thyroid extract since her operation one year ago.

Summary

A study of the thyroid cases at the Natchez Medical Group reveal an incidence of 8.16 per cent struma lymphomatosa. This incidence of struma lymphomatosa is in keeping with the previous report from New Orleans by the author et al indicating a high incidence of chronic thyroiditis in the Gulf States as compared to other parts of the United States with the exception of Kansas. Four cases of struma lymphomatosa are herein reported.

The symptomatology, diagnosis, pathology and treatment of struma lymphomatosa are discussed.

Conclusion

After a study of the thyroidectomies at the Natchez Medical Group the author concludes that struma lymphomatosa in proportion to the number of surgical thyroid specimens is much greater in the Gulf States than in many other parts of the United States. These figures from the Natchez Medical Group are similar to the previously reported figures from the Mahorner Clinic, the Southern Baptist Hospital and the Touro Infirmary in New Orleans, Louisiana.

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EDITORIALS

PROFESSION OR TRADE?

There is a question abroad in the mind relative to medical and surgical fees. The question is: Should the fee for an appendectomy be the same for every patient, just as the price for a pair of Brown shoes is the same, regardless of ability to pay? Sooner or later this question will have to be settled. Sooner or later the doctor of medicine must accept an option—whether to belong to a learned profession or to a trade union.

The following is an editorial on an important subject from Dr. M. Y. Dabney, a native Mississippian, who has edited the *Southern Medical Journal* for thirty years. The Southern Medical Association is the second largest medical organization, we believe, in the nation. Dr. Dabney is a scholarly man, his learning enhanced by a fine medical integrity. In the following editorial there is much to be thought over and plenty to be practised. Socialized medicine is not whipped by any measure. The service and the behavior of the members of the medical profession hold the key to victory, and they alone. Read and ponder the following:

THE NEW MEDICAL GRADUATE

A large number of newly graduated physicians have recently joined the ranks of American medicine. Never in the history of the profession have these individuals been afforded such detailed training and education for their elected vocation. Never before have so many medical schools and hospitals been so well equipped. Paradoxically, however, their graduates are entering into a world that has become beleaguered by many ideologies that now appear to threaten the very foundations of medicine as a profession.

Socialized medicine is but one of the many threats that has resulted from the world trends of today. "Equalization" in industry, labor and other professional fields is the doctrine being widely promulgated. There appears to be a worldwide movement toward equalization of everyone's economic level. Such impulses or instincts have fostered the ideologies of socialism and communism.

One of the main causes of the medical profession's being a target of attack today is the modern physician's improved economic position, and the failure of some of the best trained scientifically to recall that medicine is a profession of service. The doctor is accustomed to being accepted as a leading member of his community and it is with a sense of shock that he occasionally finds someone who actually dislikes the members of his profession in general and criticizes them. Unfortunately, every day physicians are making enemies for themselves and for the private practice of medicine by their individual actions, some thoughtless and selfish, a few, as in every walk of life, greedy and dishonorable. This must be regarded as a defect in medical education.

The modern period is not the first in which the medical profession has been widely criticized. There have been many instances. In the twelfth century there lived a Jewish physician named Moses Maimonides, whose life was recently sketched in the *New England Journal of Medicine.*[1] He was one of the famous physicians of his day, as well as a philosopher, leader and scholar. However, he was not always afforded honor, but was repeatedly subjected to persecution and criticism.

It was Maimonides who wrote the "Prayer of a Physician."[1] Out of his adversities was born this literary masterpiece that has served as an inspiration for physicians throughout the ages. Every morning before starting his day's routine Maimonides offered this prayer, a portion of which is quoted below.

. . . Grant that I may be filled with love
For my art and for my fellowmen.
May the thirst for gain and the desire for fame
Be far from my heart.
For these are the enemies of Pity
And the ministers of Hate.
Grant that I may be able to devote myself, body and soul,
To thy children who suffer from pain.
Preserve my strength that I may be able to restore
The strength of the rich and the poor,
The good and the bad, the friend and the foe.
Let me see in the sufferer the man alone.
When wiser men teach me, let me be humble to learn.
For the mind of man is so puny
And the art of healing is so vast.
. . . Let me be intent upon one thing, O Father of Mercy—

To be always merciful to Thy suffering children.

This prayer could very well guide the new medical graduate today, and his older colleagues as well.

DR. HUGH GAMBLE

Mississippi medicine sustained a major loss in the passing of Dr. Hugh Gamble of Greenville. A native son of Mississippi, he brought great honor to his beloved state. One of the outstanding surgeons of the South, in technical ability, in surgical knowledge and wisdom, he was surpassed by few. He was a prince in medical integrity, in professional ethics and in genuine dedication to his work. He was interested in and gave liberally of his time to organized medicine. He was a staunch advocate of the four-year medical school, gave of his time and used his influence for its establishment. He was deeply interested in hospitals and in their giving good service to the people at a reasonable cost. No phase of medical service for the people escaped his attention and cooperative interest. But, above all, he had a vision of the supreme challenge to medicine, that of building a citizenship in a better human society. He sought to know his clientele and their every need, in their social, their economical and their religious upbuilding. He laughed with the people in their joys and he sympathized with them in their troubles.

Dr. Hugh Gamble was a fair-minded man, courteous, kind and grateful. Few have been cast in a mold such as his.

One of his untiring pursuits was the fight on cancer. He longed to see it whipped and our people relieved of the ravages of this dread enemy. It is most fitting that friends over Mississippi are establishing a cancer memorial fund in his name. Could he know, no one thing we are sure would please him more.

RURAL HEALTH CONFERENCE

The state-wide conference on rural health held at Mississippi State College on July 14 promised much for medicine in our state. Dr. S. K. Johnson is doing notable work in this field. Dr. McCall, our state president, is taking a leading part also. He knows from experience of our rural medical problems, and sees the importance of relating health efforts with other agencies at work to give our people more abundant life.

It is good economy for all the people to have the benefit of the best in medicine. Mississippi will soon have its four-year medical school and hospital system to carry medicine to every nook and corner of the state. However, it is not enough that doctors know the best in medicine and be willing to give it; the people must be more understanding and better educated upon medical services. Toward this end, rural medical conferences will bear fruit.

DR. GUYTON GIVEN GRANT

Heart disease is now man's major enemy in the death toll each year. But it is going to be more amenable to treatment and prevention than some same other diseases. It is wonderful to see the interest in our state and the measures being taken to solve this problem. We note with special pride the work of Dr. Arthur Guyton at the University. He has the scientific mind and the training to do great things in research. The recent grant from our Heart Association is well placed. Our four-year medical school we trust will give him yet greater opportunities. Research too is two-way in service as it is carried to the clinician and general practitioner, who in turn with observing eye aid the laboratory man.

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[1] Barr, S. E.: Moses Maimonides. New Eng. J. Med., 25:779-780 (May 6) 1954.

News and Comment

DR. PARSONS RECEIVES ACS, MISSISSIPPI DIVISION, DISTINGUISHED SERVICE AWARD

Dr. Parsons

(The following is a portion of the tribute paid Dr. W. H. Parsons of Vicksburg by Dr. Mefford Runyon, New York City, executive vice-president of the American Cancer Society).

They say that a man is known by the company he keeps. If I were to tell you this evening that the American Cancer Society and its Mississippi Division are institutions as important as our public school system and as virtuous as saints and as sound in principle as our democratic form of government, then it would follow, I am sure, that Dr. Willard Herring Parsons who has long been associated with the Society is also important, virtuous and sound in his principles.

However, if a man is judged by the company he keeps, it is no less true that a man may be measured by his interests, his enterprises, and the problems he engages in—in other words, by the jobs he undertakes.

The great physician-philosopher, Albert Schweitzer, put it this way: "To everyone, in whatever state of life he finds himself, the ethics of reverence for life do this: they force him without cessation to be concerned at heart with the human destinies which are going through their life course around him, and to give himself as a man, to the man who needs a fellow man.

"They will not allow the scholar to live only for his learning, even if this learning makes him very useful; nor the artist to live only for his art, even, if by means of it, he gives something to many. They do not allow the very busy man to think that with his professional activities he has fulfilled every demand upon him. They demand of all that they devote a portion of this life to their fellows."

And this, Dr. Parsons has done. Let's look at the record of his activities not only in the American Cancer Society but in other areas as well.

Dr. Parsons has been most influential in the development of medical facilities in the city of Vicksburg. In 1929, in association with Dr. Isaac Knox, Sr., the former Vicksburg Hospital, Inc., was built and accepted its first patient. This institution grew steadily during the next twenty years and in 1949 was given to the Lutheran Laymen's League and became the present Lutheran Hospital. The Vicksburg Hospital was the first institution in the state of Mississippi to be approved for graduate training in surgery, and it rapidly became one of the better known hospitals of the South.

During the twenty years from 1929 to 1949 Dr. Parsons was chief of the surgical staff of this hospital and was director of the Vicksburg Clinic and head of the department of surgery. He is now chief of staff of the Lutheran Hospital and continues as director of surgery, as well as chief of staff of the Vicksburg Clinic and its director of surgery. For a number of years he was senior consultant in surgery to the Mississippi State Charity Hospital, and a consultant in thoracic surgery to the United States Veterans' Hospital in Jackson, and he is a member of the faculty of the graduate school of the University of Mississippi.

Dr. Parsons is a member of the Issaquena-Sharkey-Warren Counties Medical Society; the Mississippi State, the Southern and the American Medical associations, he is a Fellow of the American College of Surgeons and for the past two years has served as chairman of the board of governors of this organization. He is a member of the Southeastern Surgical Congress; a member and former vice-president of the Southern Surgical Association; he is a member and past president of the Southern Society of Clinical Surgeons; he is a fellow of the Societe Internationale de

Chirurgie; and is the only Mississippian ever to have been elected to membership in the American Surgical Association.

Other activities in his chosen field of surgery have included membership in the American Association for the Study of Goiter, and of the Western Surgical Association. He is now chairman of the Trauma Committee for the state of Mississippi of the American College of Surgeons. He has served as president of the Mississippi State Hospital Association; as chairman of the Cancer Committee of the Mississippi State Medical Association; and has for many years been chairman of the subcommittee on education of the Mississippi Division of the American Cancer Society as well as a member of the National Society's Committee on Professional Education.

He is a member of the Advisory Editorial Board of "CA—A Bulletin of Cancer Progress" and "The Cancer Bulletin." He has made many contributions to the literature in the field of surgery and in recent years this has been with particular reference to cancer and allied diseases.

He is director of graduate training of the Lutheran Hospital and Vicksburg Clinic.

Here you have a man who has not only made himself a leader in his chosen field of surgery and has contributed greatly to its improved techniques but a man who has also recognized the urgent necessity of both public and professional education if we are to save lives from cancer and who has become a leader in these areas.

His great interest in clinical surgery has in recent years been equalled by his educational work especially in the field of cancer.

He has just been nominated as a professional director from Region III to the national board of the American Cancer Society and his election will take place in October at the annual meeting.

In all of this work and in other cancer control activities, Dr. Parsons has given vigorous, sympathetic and courageous leadership in his determination that the Mississippi Division of the American Cancer Society shall have an organization and a program worthy of the fine support it has always received from the citizens of this state.

You who are gathered here at dinner can all be proud of Dr. Parsons as a man, you can be proud of him as a citizen, you can be proud of him as a surgeon, and you can be proud of him as a courageous and enlightened leader in the cancer control movement in this state.

This is his record—the record of a man who gave himself as a man to the man who needs a fellow man. And,

> "Let this suffice, by this conceive the rest,
> He should, he could, he would, he did the best."

At a meeting of the Terminal Care Committee of the American Cancer Society, Mississippi Division, in July, which preceded the meeting of the Board, the chairman, Dr. Eugene Nobles, commented on the very excellent cooperation which has been given this committee by the general practitioners and general hospitals over the state in meeting the ever mounting problem of terminal care. He stated that terminal care is a problem which must be at a local level and that without the cooperation of the local hospitals and physicians this problem could have no solution.

The number of hospitals which cooperated with the terminal care program in the last year was almost double the number which was working with the program a year ago. This, Dr. Nobles felt, was due to the fact that the Mississippi Division is now able to supplement the local hospitals with dressings and other supplies which in some way help defray the cost of these terminal care patients. The members of the Terminal Care Committee are: Dr. W. H. Frizell, Dr. A. L. Gray, Mrs. Elizabeth N. Wates, Mr. Erst Long, Dr. Hugh A. Gamble, Dr. W. H. Anderson, Mrs. S. L. Bailey, Dr. S. K. Johnson, Mrs. W. H. Waddell, Dr. Felix J. Underwood, and Dr. E. R. Nobles, chairman.

Officers of the American Cancer Society, Mississippi Division, are: Dr. Felix J. Underwood, president, Jackson; Mr. Hal Hayward, vice-president, Jackson; Mrs. Elizabeth N. Wates, executive vice-president, Jackson; Mr. George Wallace, treasurer, Jackson; Mrs. W. H. Anderson, secretary, Booneville; Dr. E. R. Nobles, chairman, Board of Directors, Rosedale; Dr. Felix J. Underwood, chairman, Executive Committee, Jackson; Dr. W. H. Parsons, chairman, *pro tempore*, Executive Committee, Vicksburg.

Chairmen of standing committees: Dr. A. E. Brown, Service Committee, Columbus; Dr. D. S. Pankratz, Education Committee, University; Senator Burkett Martin, Legislative Committee, Vicksburg; and Mr. Hal Hayward, Campaign Committee, Jackson.

Polio is on the flare and the active fight against it is being waged furiously. What a glorious day it will be when this dread disease has been whipped.

ADDITIONAL SALARY AND EMPLOYMENT POLICIES OF SCHOOL OF MEDICINE

It is of interest to Mississippi physicians that the following recommendations made by the chancellor and dean of the medical school were adopted by unaminous vote of the Board of Institutions of Higher Learning.

The Chancellor recommends for the purpose of pointing up the principles involved that the policy adopted by the Board of Trustees include the following provisions:

1. That all full-time faculty members shall be "geographical full-time."
2. That professors on the clinical faculty be employed at a maximum salary of $15,000 per year with the privilege of earning an additional $5,000 per year from private practice and referral and consultative practice, or a total maximum of $20,000.
3. That all earnings from private practice and referral and consultative practice by an individual clinical professor shall be creadited to the income of the School of Medicine.
4. That the Dean of the School of Medicine shall have the power to reinburse each clinical professor engaging in private practice and referral and consultative practice the amount of his earning from each practice, but the total of such reinbursement per year shall be restricted to the earnings of the professor or $5,000 whichever is the less.
5. That all earnings in excess of $5,000 from a professor's private practice and referral and consultative practice shall be earmarked for research, development, and other purposes essential to the operation of the School of Medicine and shall be expended upon the recommendation of the Dean of the School of Medicine and his Advisory Council with the approval of the Chancellor and the Board of Trustees.
6. That all part-time clinical instructors who have definite and special responsibilities, for example, teacher in charge of dermatology or orthopedic surgery, shall be paid a definite stipend.
7. That salaries of professors in the basic sciences be maintained at a level sufficiently high to enable the School of Medicine to hold its best professors in this area and to attract promising young professors to its faculty.

SMA

The Southern Medical Association meets this year in Saint Louis, the city where the North and the South and the East and the West meet and blend their past and future, the best convention city of our nation. It will be good to be there.

GRANT-IN-AID TO DR. GUYTON

A Grant-in-Aid award of $5,066.25 has been made to Doctor Arthur C. Guyton, Department of Physiology and Biophysics of the University of Mississippi, under the national research support program of the American Heart Association and its affiliates, it is announced by Doctor W. K. Purks, president of the Mississippi Heart Association. This award is part of the $953,370.71 total which the American Heart Association and its affiliates have granted to research scientists working toward the prevention and control of heart or blood vessel diseases. The awards cover 169 studies to be conducted during the fiscal year beginning July 1, 1954.

THE AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC.

Applications for certification (American Board of Obstetrics and Gynecology) for the 1955 Part I Examinations are now being accepted. Candidates are urged to make such application sometime in July or August. Office of the Secretary, Robert L. Faulkner, M.D., 2105 Adelbert Road, Cleveland 6, Ohio.

Application for examination or re-examination, as well as requests for resubmission of case abstracts, must be made to the Secretary prior to October 1, 1954.

Under a change of requirements for the Part I Examination, candidates must submit 20 case abstracts rather than 25 as formerly. Five of these may be from one's residency service.

WILKINSON-AMITE COUNTY

The Wilkinson-Amite County Medical Society held its quarterly meeting at the Field Memorial Community Hospital at Centerville July 10. The program was presented by Dr. Dick Field, Jr., who is specializing in surgery in New Orleans.

The guest speaker was Dr. Page Acree, associate professor of surgery in Tulane Medical School.

Dr. Acree gave a most instructive talk on the care of traumatic injuries of the chest. The paper was discusesed by Dr. E. M. Robards of Jackson, La.

Two new members were taken into the society, Drs. Louis Chatham and Otis Carl Mitchell of Liberty, Miss. The Society was glad to welcome Dr. Sam Field back again. He has been out several months due to illness, but is back on the job feeling fine.

Dr. and Mrs. Paul Jackson of Clinton, La., and Dr. and Mrs. E. M. Robards of Jackson, La., Dr. John Egger of the Department of Surgery who accompanied Dr. Acree and Dr. Field, were among the out-of-state guests.

ABSTRACT FROM PEDIATRIC LITERATURE

Harvey F. Garrison, M.D.

Treatment of Tuberculous Meningitis. W. W. Waddell, Jr., A. P. Booker, W. C. Gregory and O. B. Bobbit. A.M.A. Am. J. Dis. Child. 87:273-286 (March), 1954.

Data are presented on the results of treatment of two series of infants and children with tuberculous menigitis. The first series of 19 patients was treated from May, 1947, to February, 1952, by the conventional schedule of streptomycin given intramuscularly and intrathecally with p-aminosalicylic acid orally and/or thiazolsulfone (promizole) orally. The second series, six patients, was treated from May, 1952, with streptomycin intramuscularly and p-aminosalicylic acid and isoniazid orally, without streptomycin intrathecally. Of the 19 patients, 11 died and 8 survived, but of these only 4 were without mental or neurological defects. Of the four in good condition, two were treated once each for relapse. The longest survival was four and one-half years for a mentally defective patient and four years for a patient in good condition. Patients with associated miliary tuberculosis or tuberculous pneumonia did not apparently have a poorer prognosis than those without these pulmonary manifestations. Results in the second, small series with only a short followup were in striking contrast to those in the first. Four patients are alive and are in remarkably good condition. One of these has completed the course of treatment, and three are still receiving treatment. There have been no relapses. The longest survival is 12½ months. Two patients died; one was in a terminal condition on admission and died after only three days of treatment; and the other had hydrocephalus with spastic paralysis and died despite adequate treatment. Detailed determination of isoniazid levels in the serum and cerebrospinal fluid in three of the six patients showed an average peak of serum levels three to four hours after the administration of the drug and an average peak of cerebrospinal fluid levels in four to six hours, with higher levels in the serum than in the cerebrospinal fluid. There was more variation in the serum than in the cerebrospinal fluid levels. Results warrant further clinical trial of the new regimen that consists of giving 40 mg. of streptomycin per kilogram of body weight intramuscularly per day, but not more than 1 gm., in one dose, daily until the clinical course and the cerebrospinal fluid are normal, and then three times weekly for a total course of at least six months; 0:4 gm. of p-aminosalicylic acid per kilogram of body weight orally per day in divided doses three times daily for at least 12 months; and 0.5 of isoniazid per kilogram of body weight orally per day in divided doses every 12 hours for at least 12 months.

COMMENT:

This is a very interesting article on the treatment of tuberculous meningitis. The authors have evidently had very valuable experience and certainly have utilized the most modern treatments at the time. However, it remains to be somewhat the same old story, their lacking a good deal of curing them yet, even though the success they have had in these treatments are, to say the least, remarkable. But we are by no means on a sound basis for curing these cases at this time.

Many years ago it was well known that when one made a diagnosis of tuberculous meningitis, it was a definite sentence of death. It is certainly worthwhile to treat these cases along the lines mentioned by the authors. It is a long drawn-out task, but with perseverance and hard work, some of them can be saved, although many of them are left mentally as well as physically crippled for life.

ANNOUNCEMENTS

Howard B. Hasen, M.D., announces the opening of his office for the practice of Urological Surgery at 1157 Madison Avenue, Memphis 3, Tennessee. Telephone: 2-1320.

Temple Ainsworth, M.D., Lloyd E. Deddens, M.D., announce the removal of their offices to 714 North State Street, Jackson, Mississippi, for the practice of urology.

Drs. William E. Denman and Sam C. Carter announce the association of Dr. Wilford H. Gragg, Jr., in the practice of medicine and surgery. Practice limited to thoracic and cardiovascular surgery. 1151 Madison Avenue, Memphis, Tennessee.

Deaths

DR. HUGH GAMBLE

The disease for which Dr. Hugh Agnew Gamble had sought a cure has claimed his life.

Dr. Gamble, noted Mississippi surgeon and cancer research specialist died on Sunday, July 11, at King's Daughters Hospital of cancer of the Kidney. He was 77.

Mechanized Farming Pioneer

Services for the widely known surgeon were held at 3 Monday afternoon at First Presbyterian Church with the Rev. Russell Nunan officiating.

Dr. Gamble, president of the State Medical Association in 1929, was a Greenville councilman during the past 12 years and pioneered mechanized farming in the rich Delta region of the state.

Born in Saltillo, Lee County, he was graduated with the class of 1898 at Mississippi A & M College, now Mississippi State College. After graduation his entire class enlisted in the Mississippi State National Guard to serve in the Spanish-American War.

After he was mustered out he entered Vanderbilt University in 1899 to study medicine. He received his MD degree from Tulane University School of Medicine in 1904 and served his internship at Charity Hospital in New Orleans.

Backed Hospitals

In 1907 he moved to Greenville and opened his office. In 1911 he married Miss Innis Starling.

Dr. Gamble's life was devoted to medicine and his fellowman. He was instrumental in bringing the King's Daughters Hospital into being and in recent years was interested in the building of the new Washington County General Hospital.

He served 12 years as a member of the City Council where he always had the betterment of his community in mind. His interests also branched into the field of farming and he backed the late Charles Berry of Greenville and later Mr. Berry's son in developing the mechanical cotton picker.

In the field of his chosen profession he was a charter member of the American College of Surgeons when it was formed in 1913.

He was a member of the Southeastern Surgical Congress, the Southern Surgical Congress, Southern Surgical Association, the American Association of Railway Surgeons, American Association for the Study of Goiter and the founders group of the American Board of Surgery and president of the Mississippi Medical Association in 1929.

In 1951 he received the award for distinguished service presented by the Mississippi division of the American Cancer Society. A just reward indeed, for he pioneered in the study of cancer and was a lecturer, writer, and consultant in all phases of medicine, but in none more ardent in his zeal than in the study and work to prevent cancer.

He was a lifelong member of the First Presbyterian Church of Greenville where he has served as elder.

At the biennial meeting of the American Cancer Society, Mississippi Division, which met on July 1, his presence was missed and tribute paid to his work. With his death, the board has unanimously decided to perpetuate his work through the Hugh Agnew Gamble Fund. This fund will further the work among the indigent so they may have adequate care.

He leaves a son, Dr. Lyne Starling Gamble; a brother, Dr. Paul Gaston Gamble, both of Greenville; and two sisters, Mrs. N. H. Crenshaw, Guntown, Miss., and Mrs. J. J. McInnis of Handsboro, Miss., and three grandsons.

DR. G. D. HIGHTOWER

Services for Dr. George David Hightower, Sr., who died at his home in Webb June 26, were held at the First Methodist Church June 28.

Dr. Hightower, who was 77, was born at Smith's Mills, Carroll County, Miss.

He received his doctor of medicine degree at Memphis Hospital Medical College in 1903 and did postgraduate work at Chicago Polyclinic, John Hopkins, Vanderbilt and Tulane universities. He served many years as Tallahatchie County health officer.

He was a steward in the Methodist church, a 32nd degree Mason, a Shriner, a charter member and past president of the Webb Lions Club, member of the American Medical Association, Southern Medical Association, Mississippi Chapter American Academy of General Practice, Clarksdale, and Six Counties Medical Association and Tallahatchie Medical Society.

"Dr. Hightower Day" was celebrated in Webb May 22, 1952, and was attended by hundreds of his friends, both white and negro, and high tributes were paid to him by leading citizens of the county.

At that time he was awarded the Fifty-Year Club pin from the State Medical Association. He was awarded a certificate of distinction at the 84th annual meeting of Mississippi State Medical Association held in Jackson in May, 1952.

Dr. Hightower came to Webb in 1902 and in 1907 he married Miss Winnie Benson of Webb.

He leaves his wife; a son, George David Hightower, Jr., of Webb; a brother, Dr. L. H. Hightower of Itta Bena, Miss.; a sister, Mrs. M. L. Kent of Selma, Ala., and two grandchildren, George Hightower III and Ann Hightower of Webb.

DR. D. G. RAFFERTY

Dr. Donald George Rafferty, 74, former mayor of Pass Christian and well-known physician, died June 12 at his residence at 551 East Beach, Pass Christian.

Born February 24, 1882, in Pittsburgh, Pa., Dr. Rafferty attended Harvard University. He took his medical degree at the University of Pittsburgh. He joined the Frick Abyssianian Expedition to East Africa in 1910-11 to collect specimens for the Smithsonian Museum, after which he became physician for the Ashanti Gold Mining Company on the West African Gold Coast in 1912-13. He traveled extensively in China and Japan in 1915-16. He was a postgraduate of the University of Vienna, Austria.

At the outbreak of World War I, he joined the Navy, in which he served five years. After the war he was placed in charge of sanitation and customs of Haiti.

At the end of the US protectorate of Haiti, he started medical practice in Pass Christian, where he worked until his retirement eight years ago due to ill health.

Dr. Rafferty served as Pass Christian's mayor from 1934-36.

He was former president Coast Counties Medical Society. He held membership in the American Medical Association, and the Mississippi State Medical Association.

Dr. Rafferty moved to the Coast in June, 1923.

He is survived by his widow, the former Miss Merwyn Shenton, Chicago; a brother, Ewing Rafferty, New York; four children, Mrs. Sheelah Locker; Nigel; Rory and Michael; and three grandchildren.

The Scientific Foundation of Chest Radiology

R. R. NEWELL, M.D.

San Francisco, California

A lady once came to Laennec,
Bringing sputum with sanguinous fleck.
With his new stethoscope
He heard no cause for hope;
Told her, "Darling, your lungs are a wreck!"

LAENNEC'S INVENTION of the stethoscope was a first step in separating the physician from his patient. If we must suffer the further separation due to modern laboratory medicine, wherein science displaces our physicianly intuitions, must we not make it as scientific as possible?

Obviously we cannot get diagnostic help from what we can not perceive. The least thing we can perceive on an x-ray film depends on the shadow of it, specifically on its size, contrast and sharpness. Burger[1] has plotted the threshold for sharp shadows recorded on double screen films and by photofluorography. (Fig. 1)

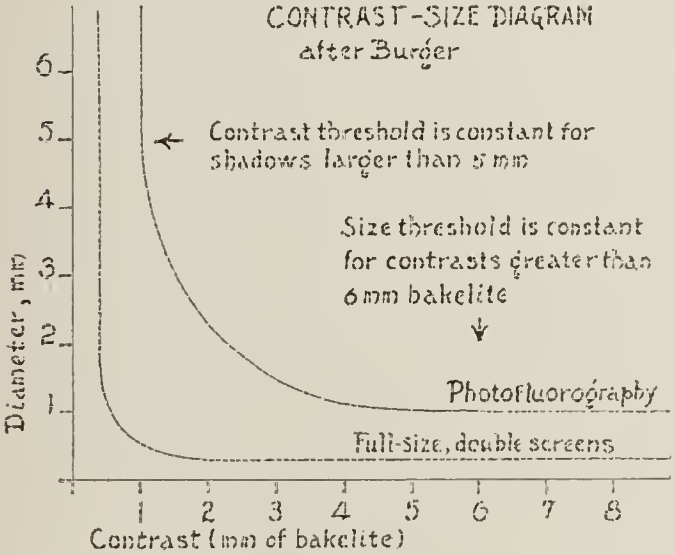

Fig. 1. The reciprocal relationship of size and contrast at the threshold of visibility of sharp roentgen shadows. Note that for photofluorograms 5 mm. diameter is big enough to achieve the lowest threshold for contrast, and no further increase in size has any effect. The critical size for 14 x 17 films is 1.5 mm.

Empirically a fair fit is given by

$$\frac{1}{d} + \frac{1}{e} = k$$

where d is the diameter in millimeters and e is the contrast in millimeters thickness of bakelite. For double screen technic k = 2.8; for photofluorograms k=1. k is presumably a function of the sharpness. It would be interesting to determine k for fluoroscopy, where the unsharpness is due to retinal function at scotopic brightness levels. Then one might determine k for fluoroscopic image amplifiers as a measure of the limitations set by statistical fluctuation of the x-ray quanta effective.

Some years ago when rotating anode first became available, I[2] determined the optimum balance between exposure time and fineness of focus to get the best chest film. Fig 2 reprinted from that report, shows how the unsharpness due to movement (heartbeat) and that due to finite size of focal spot add together (as quadratic sum). The resultant total unsharpness is seen to be at a minimum (for kilovolt ranges usual at that time) when exposure time is about 1/40 sec and tube distance 1 meter using the 1 mm focal spot (rotating anode). It seemed remarkable to me that practically nobody adopted this demonstrated optimum for routine work. I did not even force it as routine in my own department. I know now that the reason was not because I had answered the question wrongly, but because I

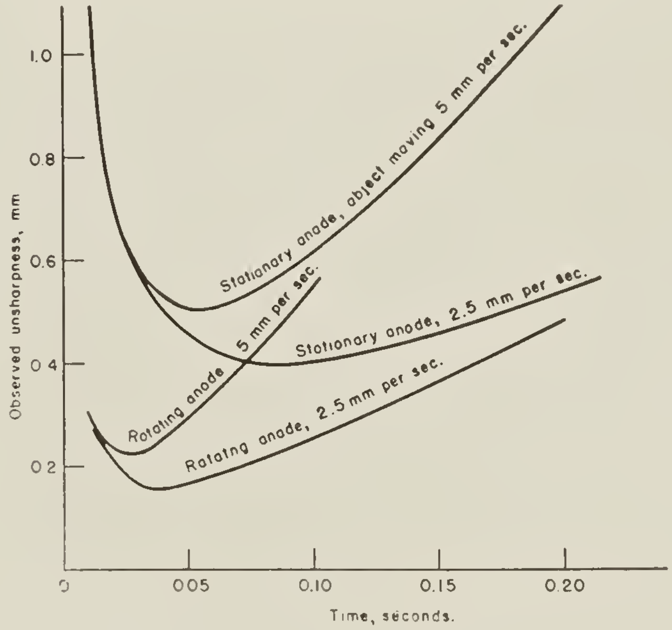

Fig. 2. The effect of focal spot and of movement upon the sharpness of pulmonary shadows. The shorter the exposure the larger the focal spot has to be. The longer the exposure, the more the effect of movement (heart beat transmitted to pulmonary vessels). The optimum combination of 1 mm. focus, rotating anode, 1 meter distance and 1/40 sec. exposure reduces unsharpness to the minimum.

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*Presented at the sixty-fifth annual meeting of the Mid-South Postgraduate Medical Assembly., Memphis, Tennessee, Feb. 9-12, 1954.

had answered the wrong question. I had set my sights on the lung markings (small pulmonary vessels). But as clinical radiologists we are mostly concerned to see patches of airless lung. They are usually fuzzy and a centimeter or several centimeters in size. Exceptions are pneumonoconiosis and miliary tuberculosis (or coccidioido-mycosis or histoplasmosis) with lesions as small as one millimeter sometimes. Also metastatic cancer, and the infrequent nummular lesions of tuberculosis and coccidioides, which may be quite sharp instead of fuzzy.

Fig. 3 shows the shadows of a variety of lucite, etc. test objects, that we[3] used to investigate x-ray visibility. By double screen technic in open air with no distracting shadows it is just possible to see a lucite disc 0.4 mm thick. A lucite tile 5 mm square is not a whit less visible than one of the same thickness 50 mm square.

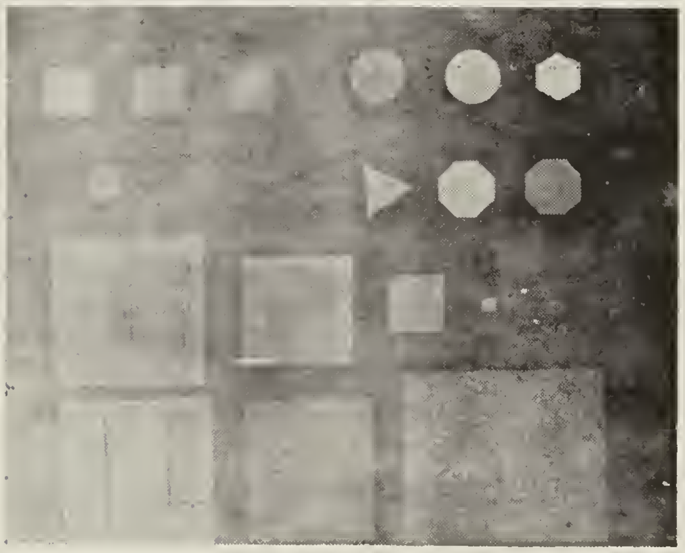


Fig. 3. Radiograph of a few of the lucite test objects and seeds used to investigate the effect of size, shape, contrast and sharpness on visibility in pulmonary radiology.

But if a shadow of any size is unsharp it is much less visible. Measuring the fuzziness by the width of bevel on the test disc, we could show the effect quantitatively (Fig. 4)

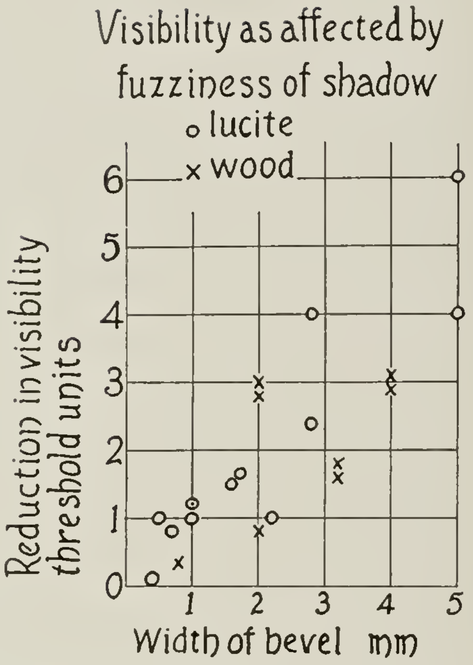


Fig. 4. Relation of visibility to sharpness of outline. The wider the bevel on a lucite disc, the thicker the disc must be to be visible on a radiograph.

We now recall a research by Birkelo *et al.*[1] which seemed to show over-reading of minifilms. Fig. 5 is drawn from those data. Each of 300 patients had 20 readings (5 readers times 4 technics). Readers disagreed on many films, but the total of positive readings was similar for the 4 technics in cases that were "easy to read". For patients receiving only 1 to 5 positive readings out of the possible 20, the photoflourograms produced nearly twice as many positives as the 14 x 17 (films or paper) produced. To call this over-reading is unwarranted. Some of it may be due to increased visibility of borderline fuzzy shadows. The shadow on a minifilm is small, and the width of its fuzzy border is correspondingly small, i.e., it is less fuzzy. The total size may still be large enough to be in the range where size has practically no influence on visibility, but the lessening of the fuzziness may be sufficient to raise it above the threshold. You may say that one can make the shadows on a 14 x 17 film look smaller and sharper by standing further away from it. This is not the usual practice among radiologists, but perhaps it should be. It is not hard to find films with faint patches of infiltrate that come above or below the threshold as one stands far or near to the film.

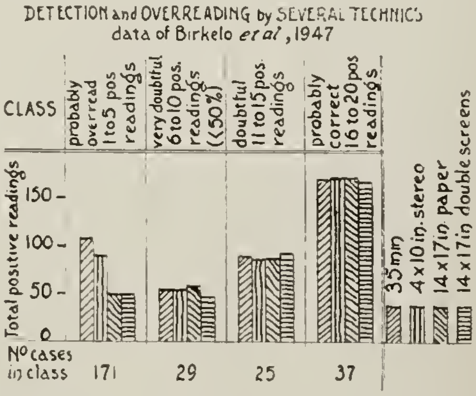


Fig. 5. So-called over-reading of minifilms. Each patient had a maximum possible total of 20 positive readings. Note that the scores of all four technics are alike except for patients who received few positive readings. For these the minifilms were read positive nearly twice as often as the 14 x 17 technics. It is possible that this is not all over-reading, but lowered threshold of visibility (see text). (Data from Birkelo, *et al.*)

It appears that we have been over-valuing fine focus and short exposure-time. The pulmonary infiltrates of tuberculosis produce fuzzy shadows in the overwhelming majority of cases. For these, no perceptible reduction in visibility is produced by the addition of a modicum of geometric unsharpness (from large focal spot) or of movement unsharpness (long exposure-time).

It cannot be assumed that the quantitative results on shadows of artificial objects in open air can be applied directly to clinical work. They must be checked on regular chest radiographs among the interfering shadows of ribs and pulmonary vessels. Before extending the research, we stopped to evaluate the effects of exposure density and hardness on visibility. Some of the lucite tiles shown in Fig. 3 were put on subjects' backs so as to cast their shadows in one part or another of the lung fields. Fig. 6 shows the effects of under- and over-exposure and of soft and extra hard qualities. The effects are smaller than I had previously supposed, and somewhat unexpected. Unless under- and over-exposure are extreme, they do little harm to visibility. The effect of kilovoltage is also small. Perceptibly the best visibility was attained at the hardest diagnostic quality (in clinical use at that time). I suppose this is due to the fact that the shadows of the ribs are markedly lessened while the shadows due to lighter atoms are but little affected (absorption mostly by Compton scattering). Over the range of effective wavelengths ordinarily used in chest radiography, the absorption co-efficient for water (oxygen) changes by a factor of 2 while absorption by calcium (bones) is changing by a factor of 10

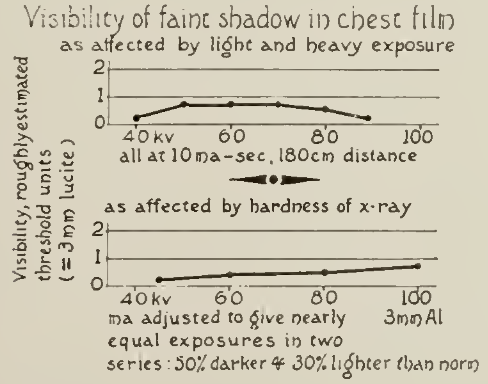


Fig. 6. Visibility of a faint sharp shadow in the lung field over a large range of exposures and a large range of x-ray qualities. Note how little the visibility changes with changes of quantity and quality of x-ray in the middle ranges.

Returning now to the determination of thresholds for pulmonary shadows, we found that the least visible thickness of a lucite tile put on the subject's back is about 3 mm. Fig. 7 shows the visibility of other test shadows. Multiple shadows are more visible than single ones, especially if they are regularly repeated. Partly this is due to chance coincidences with vascular shadows. The effect is also evident for uniform background (plain films), so apparently there is a psychophysiological factor involved as well.

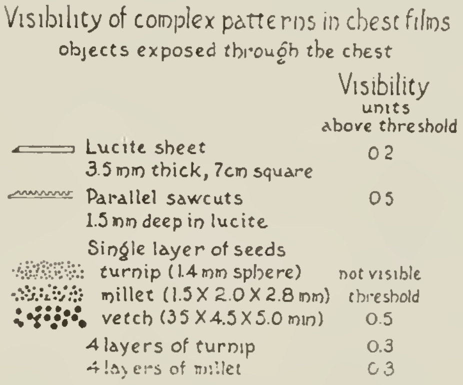

Visibility of complex patterns in chest films
objects exposed through the chest
Visibility units above threshold
Lucite sheet 3.5 mm thick, 7cm square
0.2
Parallel sawcuts 1.5 mm deep in lucite
0.5
Single layer of seeds
turnip (1.4 mm sphere)
millet (1.5 X 2.0 X 2.8 mm)
not visible threshold
vetch (3.5 X 4.5 X 5.0 mm)
0.5
4 layers of turnip
0.3
4 layers of millet
0.3

Fig. 7. Visibility of the shadows of various test objects superimposed on normal lung field.

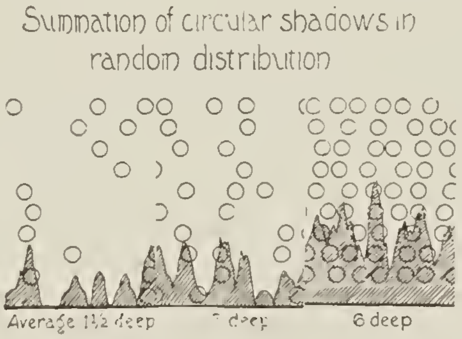

Summation of circular shadows in random distribution
Average 1½ deep
deep
6 deep

Fig. 8. How miliary tuberculosis becomes visible by x-ray. Two-dimensional model of the superposition of shadows of small round objects distributed at random. Although the shadow of a single object may be below threshold of visibility, chance summation of shadows in a few spots can come above the threshold.

Fig. 8. makes logical, I hope, the paradox of miliary tuberculosis. Multiple tubercles, each one below the threshold of visibility, can add their shadows at random so as to give many a spot of supra liminal contrast.

We have confirmed some of the above basic quantitative principles of radiographic visibility for photoflurograms. We have yet to reconfirm our conclusions for fuzzy shadows within the lung field (superimposed on lung markings).

In clinical radiology one meets all varieties of shadows, clinically significant and otherwise. They range from below the threshold of visibility (no doubt) to such as anyone can see with half an eye. A collection of chest films can be ranged in order of the visibility of the morbid shadow, if we have enough readings.

Fig. 9 shows the spectrum of positivity of two selected series of films for which we do have multiple readings. Positivity can be defined as the percentage chance of a film's being read positive. The reciprocal of positivity is, of course, missability.

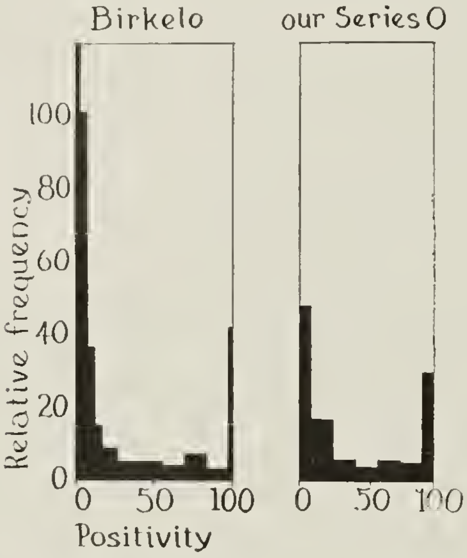


Fig. 9. Spectrum of positivity for two sets of selected chest radiographs. Our Series O was 100 films, about half positive cases. Birkelo's series was 300 veterans with a smaller percentage of positive cases. Note the bimodal distribution.

It is of prime importance to know the clinical significance of these shadows. Looking at the bimodal distribution shown in Fig. 9, it appears that we have two groups demanding study: 1) the missable cases and 2) the obvious cases.

MISSABLE SHADOWS AND FALSE POSITIVES

In a non-selected series of films, those of low positivity are even more numerous than in the selected series of Fig. 9. The matter is well presented in a study of the 1808 minifilms of an entire freshman class at Berkeley[5]. Each film was read ten times and all the positive readings studied with 14 x 17 films. In this way the films were separated into "truly positives" and "truly negatives", the six readers reaching unanimous agreement on all but 17 cases. From this study one can prophesy the performance of an "average" experienced film reader on an "average" healthy young adult population (Fig. 10.) You can expect to miss about one third of the truly positive films. And you inevitably call 1 per cent or 2 per cent of the truly negative ones positive.

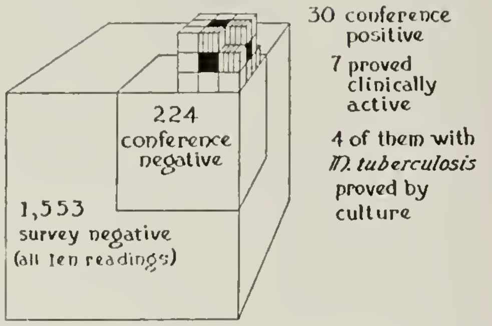

30 conference positive
7 proved clinically active
4 of them with M. tuberculosis proved by culture
224 conference negative
1,553 survey negative (all ten readings)

Fig. 10. The Berkeley Series an entire freshman class. (Data from Yerushalmy, *et al.*)

If you read the films a second time, you will miss not 1/3 but 2/3 of the truly positives not detected the first time. Obviously these are the more missable cases. And in the second reading you will pile up about as many more false positives as on the first reading. Fig. 11 shows graphically the results of double reading. The pretty obvious positives get spotted by both, but the doubly false negatives amount to only one in a thousand of films read.

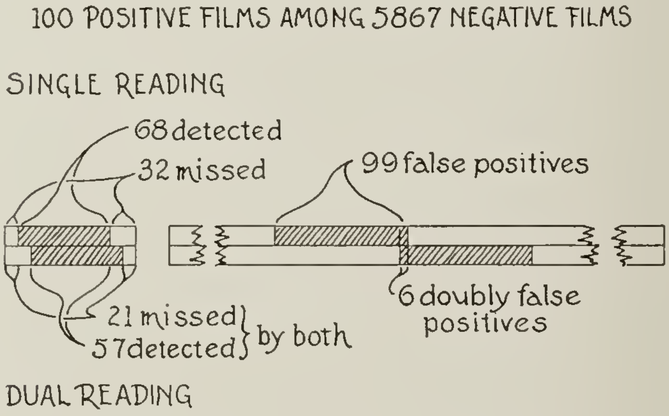


Fig. 11. Performance to be expected of average competent film readers on mass survey minifilms read once and read twice. This is based on a sample consisting of 1808 students entering college (See Fig. 10). The "truly positives" and "truly negatives" were decided by group conference, and validated by observation through remaining years at college. (Data from Yerushalmy, *et. al.*)

PERCENT AGREEMENT AND DISAGREEMENT

Two readers agree 80 per cent on the truly positive films, but each has so many false positives that the agreement on those called positive is only 50 per cent. On those called negative the agreement is 98 per cent. The overall agreement is 96 per cent.

I would like to warn about statements of percentage agreement between readers. Besides the need to know how agreement was figured (whether on all the readings or as a percentage of the positive readings), one needs to know the composition of the collection of films that were read. If, in order to save time and effort, a test series was constructed by deleting 90 per cent of the truly negative films, one would carry away with them 90 per cent of the false positives. This selection of the sample would increase agreement on films called positive from 50 per cent to 75 per cent, and would increase overall agreement from 96 per cent to 97 per cent.

THE CLINICAL IMPORTANCE OF MISSABLE SHADOWS

Disagreements are composed of false positives and missable positives. The false positives can be handled by conference on the films, followed by clinical study for a residual few. The missed cases, however, drop from view. How important are they? I had long held the opinion that a shadow so faint as to be readily overlooked couldn't be of much clinical importance. I wish to plead *mea culpa,* and cite some studies that have shown how bad the fault may be.

Fig. 12 shows the positivity spectrum for the Berkeley series. It is bimodal like the others (Fig. 9). It is the only large unselected natural group for which we have multiple readings, and the number of negative readings is, of course, overwhelming. In order to get these on a graph of reasonable scale, the plot has been made logarithmic.

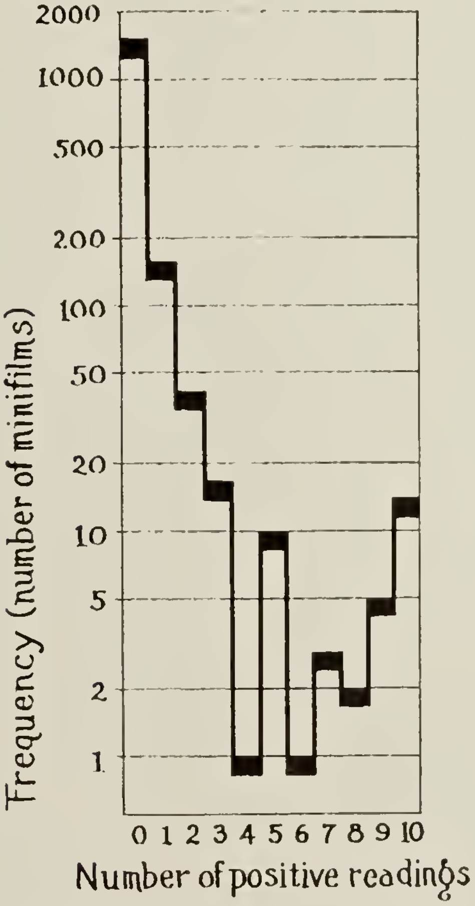
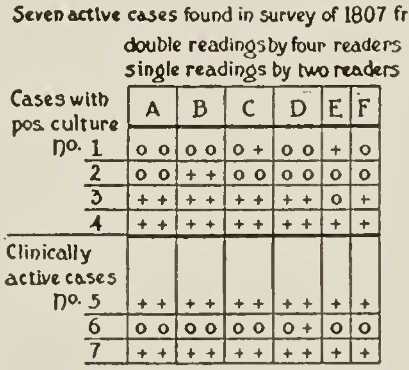


Fig. 12. Spectrum of positivity for the Berkeley series. Log frequency (log number of films in the class) is plotted against positivity (number of positive readings out of 10 readings of the minifilm). The use of log frequency is simply a device to compress the vertical scale. (Data from Yerushalmy *et al.*)

The positivity of a film is defined as the chance of its being read positive. One can assay this by presenting the film to ten readers, or by presenting it to one reader ten times. These are obviously not the same thing. In the Berkeley series the self-confirmations are similar in frequency to the mutual agreements for the "surely positive" group. But on the "false negatives" the individual reader repeats the false reading with undue frequency compared to the frequency of another reader's agreeing on the false reading. Speculating on the individual reader, it appears that about 1 per cent of the films have a positivity of 0.5 to 0.7, as revealed by self-confirmations, but will be accepted by him as "truly negative" after conference discussion.

The 1808 persons in the Berkeley series were under observation as long as they stayed in college (4 years for most of them). No case of active tuberculosis developed among those called "truly negative", but 8 cases developed among the 30 "truly positives", 7 of them during the first year. Three of these got only 1 or 2 positive readings out of 10 on their admission minifilms (Fig. 13). They would likely have been missed on an ordinary survey.



Seven active cases found in survey of 1807 freshmen

double readings by four readers
single readings by two readers

Cases with pos. culture	A	B	C	D	E	F
no. 1	o o	o o	o +	o o	+	o
2	o o	+ +	o o	o o	o	o
3	+ +	+ +	+ +	+ +	o	+
4	+ +	+ +	+ +	+ +	+	+
Clinically active cases no. 5	+ +	+ +	+ +	+ +	+	+
6	o o	o o	o o	o +	o	o
7	+ +	+ +	+ +	+ +	+	+

Fig. 13. Turning back to see what the minifilm readings were on the seven Berkeley students who proved to have active tuberculosis before the end of the year. (By the end of four years only one more case had become active, one that all readers had read positive.) If the minifilms had been read by only one or two readers, three of the active cases might well have gone undetected. (Data from Zwerling, *et al.*)

Selected examples of the importance of a missable shadow on 14 x 17 films were afforded in an exhibit by U.S.P.H.S.[6] on student nurses. You all know how high the incidence of pulmonary tuberculosis is among young doctors and nurses.

In Palmer's research, in many hospitals throughout the United States, chest films taken every 3 months provided a record that could be reviewed when any of the nurses developed a positive tuberculin reaction. Studying the original films and knowing that the tuberculin had turned positive, still I failed in several to detect any beginning pulmonary lesion. Looking then at the film taken 3 months later, the lesion was plain to see. The payoff came in several cases in which turning my attention again to the earlier film, knowing where the lesion subsequently blossomed out, I could now see the shadow that previously I could not spot. It was not a case of tuberculin conversion's preceding lobular inflammation, but merely the missability of the early stages.

Another pertinent U.S.P.H.S. study[7] was on a mass survey in Georgia (Fig. 14). In this county, a larger number died of tuberculosis in the next 3½ years among the survey-negative than among the survey-positive persons. Four of the 22 survey-positives were actually not seen by either of the two readers at the time of survey, but put over into the positive group only on review after the patient had died. These four missable cases at least were important.

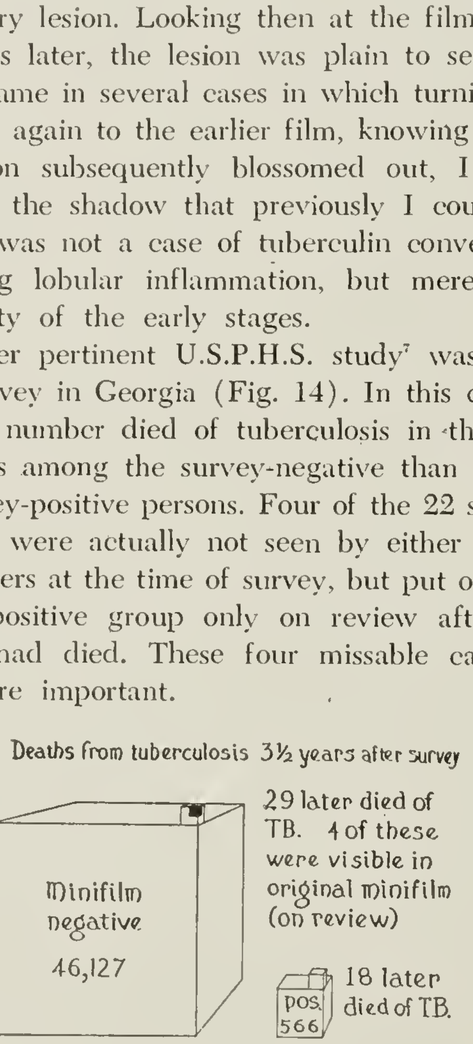

Deaths from tuberculosis 3½ years after survey
Minifilm negative 46,127
29 later died of TB. 4 of these were visible in original minifilm (on review)
POS. 566
18 later died of TB.

Fig. 14. The mass survey in Muscogee County, Ga. Not all the clinically important tuberculosis was detected even by dual reading of minifilms. (Data from Comstock and Burke.)

It appears therefore that the actual cases of tuberculosis are spread throughout the range of roentgen shadows, from missable to obvious. The problem at one end of the range is to get the shadow seen. At the other end of the range, the problem is to distinguish the one shadow that means active disease from the half dozen that will remain stable.

THE CLASSIFICATION OF OBVIOUS PULMONARY SHADOWS

We now leave the missable shadows and turn to the obvious ones.

One of our friends had a project to test the perspicacity of minifilm readers by giving them a large series of films for which one knew the patients' subsequent history—tuberculosis breakdown, or enduring health. Many of the healthy ones would have pulmonary shadows, of course, that "didn't mean anything". In this way one could select readers whose "positives" were the most significant. I have come to a conviction that this way cannot succeed because radiologists cannot tell different qualities of shadows apart.

Our experimental plan was to get a lot of pulmonary shadows classified and then follow patients for a few years, to obtain a nice objective correlation between kind of shadow and clinical significance. The Central Cooperative Clinic was set up in Philadelphia to do the longtime follow-up studies. This has been operating about 5 years now and is following some 600 persons with pulmonary shadows picked up in minifilm survey. Then it had to be decided whether to classify the shadows as "infiltrative", "productive", "exudative", "fibrotic", etc., or merely into "active" and "inactive". Or would it be best to use more objective terms, like "hard", "soft", "spotted", "honeycombed", etc., and leave it to the follow-up study to discover the clinical significance of each term? Presumably the classification to try first would be the most reliable one, meaning the system under which the radiologists would agree the best, and contradict least often the readings of the others and their own previous readings of the same film.

Three radiologists read several series of selected chest films, noting every shadow that might be a tuberculous lesion and classifying it according to an agreed descriptive code. If agreement was strictly defined, disagreement always outweighed agreement for any classification that we could invent except for the rare nummular lesions and cavities. Many lesions were seen as composite, e.g. part hard and part soft. If agreement was counted on one part, even though the other part was disagreed to, then the percentage agreement rose above 50 per cent for some classes. However, this broadening of the definition increased so much the likelihood of agreement just by chance, that the meaningful agreement, useful for diagnostic purposes, was still woefully small. The data are reported with more detail and precision in another place[8], but an idea of the discouraging failure to agree can be obtained from the block presentations in Figs. 15 to 17. We thought we did quite as well or better on the purely subjective judgment; active or inactive, without any objective analysis of the appearance of the shadow.

On a single chest film, large or small, it appears

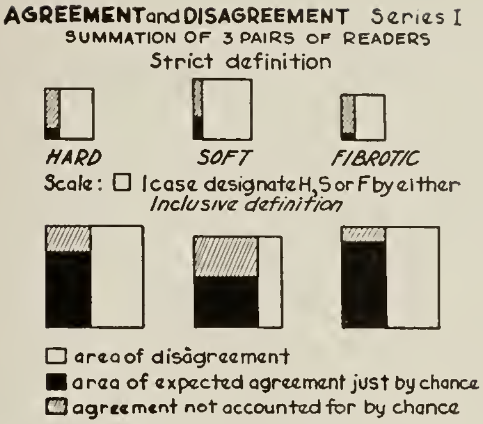


Fig. 15. Agreements among 3 radiologists as to the appearance of pulmonary lesions. Acceptance of even partial agreement increases the agreements due merely to chance and leaves still less than 50 per cent significant agreement.

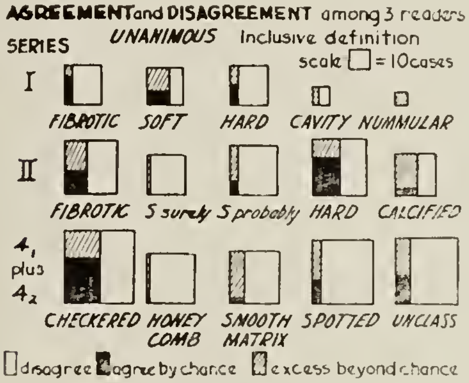


Fig. 16. Series II and 3 compared to I. Asking the three radiologists to pick out lesions that they were sure should be called soft only increases the disagreement. A more objective descriptive code fails to better the agreement.

that what a radiologist says about the quality of a pulmonary shadow and his conclusion as to its stage of activity has but little clinical usefulness.

Considering the above failure to make use of the fact that one pulmonary shadow looks different from another, we arrive pretty logically at the ideal of the minifilm reader, namely: Peel your eyes and report every shadow that can be seen. Let clinical study, bacteriology, and follow-up decide what the shadow means.

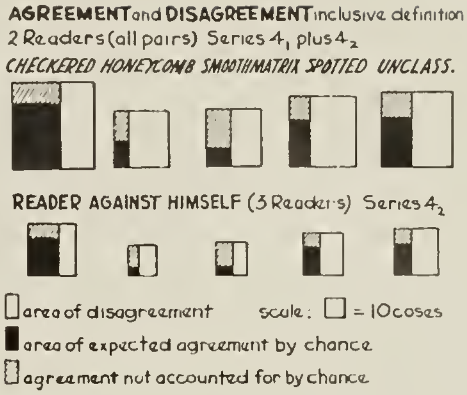


Fig. 17. Readers' own self-contradictions compared to his disagreements with others. The small difference makes it evident that disagreements are not due to misunderstandings of the code.

Perhaps we ought to make a series of test minifilms containing a generous sprinkling of near-threshold (artificial) shadows and chose for film readers those who regularly spot the highest percentage of these without drowning them in false positives.

Long clinical experience has convinced us of the value of chest radiology in the management of patients with tuberculosis. These researches suggest that we have been overconfident. We ought to take with a grain of salt the radiologist's statement that the lesion "looks active". But when one has films to compare that cover a period of time, then a judgment as to "change" or "no change" is much more reliable, as Yerushalmy, *et al*[9]., have shown. Early and late films of 150 patients were read twice by each of 6 readers, scoring better, worse or no change. In Table 1, I have abstracted the most significant of the results. The authors tabulate the numbers of cases for which all 12 readings were in agreement, 11 out of 12, 10 out of 12, etc. These frequencies prove to be bimodal. Speculative analysis suggests that some of the cases were quite definite; some barely readable for change, and that a few

TABLE 1*

Self-contradictions and disagreements between pairs of readers in judgments as to improvement of pulmonary lesions shown in early and recent films of 150 patients under treatment for tuberculosis.

	Number per 100 dual readings		Per 100 readings of better or worse
	disagreements	contradictions	contradictions
	worse) vs. better) no change	better vs. worse	
First and second readings by the same reader	18.4	3.1	6.7
Two different readers	25.6	4.5	10.4

*Data from Yerushalmy, *et al.*, *Am. Rev. Tuberc.* 64:225-248, 1951.

TABLE 2*

Degree of definiteness of the radiological evidence of improvement or worsening among 150 patients under treatment for pulmonary tuberculosis.

	definite	Not very definite		Equivocal
	chance of agreement	chance of agreement		readers agree
	better than 10:1	3:1	2:1	just by chance
Judged better	20%		17%	3%
Judged worse	6%	6%		1%
Judged static	23%	14%	3%	3%
No majority				
Total	49%	40%		7%

*Speculative analysis of data from Yerushalmy, *et al.*, *Am. Rev. Tuberc.* 64:225-248, 1951

agreements came just by chance with nothing meaningful in the films to support the decision. See Table 2.

The Central Cooperative Clinic, not having been given the reliable classification that it was set up to validate, still has produced valuable results. It has become evident that no amount of effort will discover and prove active tuberculosis in all cases in any stated period of time—even two or three years. The best one can do is to set up a working rule to decide which cases to discharge and which to continue to follow. You have to realize that a few will inevitably return later with open tuberculosis to plague you.

One can do only the best that one can do. Scientific study can, however, point the way to approach nearer to perfection and perhaps from time to time improve the route or even raise the level that can actually be reached.

SUMMARY AND CONCLUSIONS

An attempt at quantitative evaluation of technical factors and the radiologist's performance in chest radiology brings out some useful generalizations.

Good equipment and materials are important and good darkroom work very important, but tube voltage and exposure are not critical, and fine focal spot and short exposure time are not very critical. Minifilm photofluorograms are as effective in revealing most kinds of pulmonary tuberculosis at 14 x 17 films are. Estimates of regressions or progressions as shown by films taken at different times are fairly reliable, but estimates of activity based on the appearance on a single occasion are not dependable enough to have much use in clinical management. Many significant (active) tuberculous lesions cast so faint a shadow that an experienced film reader is more likely to miss them than to see them. When a pulmonary shadow is detected there is no way to tell whether the lesion is active or will remain stable. The test of a good film reader is not how shrewd he is at estimating the importance of a pulmonary lesion seen. That has to be left to clinical evaluation. The good film reader is the one who is keen to discover the least perceptible morbid shadow at all.

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Acute Intestinal Obstruction*

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THE LAST 25 years have seen a tremendous increase in our knowledge of the lethal factors in intestinal obstruction, and this improvement in knowledge has been reflected in a very substantial decrease in mortality. In 1930, C. J. Miller[1] found that the overall mortality of mechanical obstruction in the New Orleans Charity Hospital for the previous five years had been 65 per cent. In the period from 1930-32 inclusive, Moss[2] found that it had been reduced to 31.7 per cent. More recently, Becker[3] has reported that the mortality in the five-year period from 1945-50 was only 16 per cent.

This series of reports gives ample evidence of improvement, but no reason for complacency, for as early as 1942, Blodgett[4] reported a mortality of 8 per cent in 151 cases at Peter Bent Brigham Hospital. This discrepancy is accounted for in part by the differences in the two hospitals, which are numerous and fundamental, but we must admit that the quality of the treatment in the two institutions also played an important part. I think it is fair to say that the results of treatment at our hospital are closer to the national average than are those in a university hospital in Boston.

In order to improve results, we must consider the causes of death, and evaluate the means at our disposal to eliminate them.

The most important lethal factors in *simple* mechanical obstruction are: 1) dehydration, 2) electrolyte loss with associated acid base imbalance, 3) plasma protein depletion (up to 27 per cent), 4) non-protein nitrogen retention, especially of urea, 5) toxic factors not generally agreed upon, but probably due to bacterial action, 6) infection and necrosis of the bowel wall plus peritonitis.

These potentially fatal phenomena result from rather complex physiological and pathological processes but the basic causes are simple. They all result from arrest of the intestinal current, overdistention of the bowel, and impairment of the bowel wall. Furthermore, they develop slowly, and rarely reach grave proportions in less than 24 hours, so it is obvious that if the obstruction is relieved early, most of the dangers will be completely avoided. This conclusion is amply supported by Becker's series[3], in which the mortality in patients operated upon in the first 24 hours was 5.8 per cent, whereas in those after 24 hours, the mortality was about four times as great (23.7 per cent). It is interesting to note also that in Miller's series[1], in which the mortality was 65 per cent, the average duration was 42.7 hours, and in Moss's series[2] in which it was 31.7 per cent, the average duration was 35 hours.

However, for various reasons, many cases will always be late before definitive treatment can be instituted, so it is imperative that we have methods to correct or combat the lethal factors.

Dehydration can be very simply corrected by intravenous infusion. All we need is an accurate measure of the fluid loss, but this is not so simple as it seems at first glance. Urinary output and vomitus are fairly easily measured, but in low obstruction, the fluid is largely retained in the intestinal tract and in the presence of strangulation or prolonged obstruction, there is usually a considerable loss into the peritoneal cavity. However, by means of blood volume estimations, laboratory evidence of hemo concentration, urinary output, and the clinical evidences of dehydration, a workable plan of hydration is entirely practicable.

Electrolyte depletion and acid base imbalance are more difficult problems. A few years ago, we felt that when we had quick and accurate methods of determining the plasma sodium, potassium and chloride values, this problem would resolve itself into a relatively simple arithmethical calculation. Unfortunately, this has not proved to be the case. Plasma sodium and chloride have proved to be fairly dependable as clinical guides, but potasof which is normally intracellular, is a horse of another color. The plasma content of potassium is not a reliable guide to the total tissue potassium and since muscle, especially that of the heart, is acutely sensitive to variations in its concentration, one must depend upon indirect means of determining how much to give. It is significant that Moyer, who is certainly one of our leading authorities on such problems, now places his greatest emphasis on clinical evidences of potassium need, and rough estimates of potassium loss. The only way we have of determining potassium loss accurately is by actual measurement, which is obviously impractical under ordinary hospital conditions. I have no hesitation in stating that in our medical community potassium administration has, up to this time, done more harm than good. However, there can be little doubt that this problem will soon be solved, and that in the near future it will be possible to prevent or correct electrolyte deficits and imbalance with confidence.

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*Presented at sixty-fifth annual meeting of the Mid-South Postgraduate Medical Assembly, Memphis, Tennessee, February 9-12, 1954.

The increase in N.P.N. is due chiefly to dehydration with the resulting oliguria. It is not a serious danger and can be readily corrected by hydration if the kidneys function adequately.

The other lethal factors—protein loss, toxemia and infection—are all due to over-distention of the bowel which causes impaired circulation, ulceration and infection. Bacteria pass through the thinned and damaged intestinal wall into the peritoneal cavity so peritonitis occurs without perforation, which actually is rare in simple obstruction.

It seems obvious that if the bowel can be decompressed early these factors can be avoided. If the decompression comes late, ulceration and infection remain to be dealt with. The investigations of Cohn and associates[5,6] have convinced us that the chief cause of necrosis of the mucosa is bacterial invasion of the ischemic bowel wall rather than the ischemia *per se*, and this can, to a large extent, be controlled by wide spectrum antibiotics. Unfortunately, the results are much more striking when the antibiotics are administered into the lumen of the bowel than when they are given parenterally, so their usefulness in intestinal obstruction is limited.

The importance of decompression of the distended intestine has long been recognized, and since Wangensteen introduced constant duodenal suction by means of a Levin tube, and Miller and Abbott devised the first long tube, it has become abundantly clear that in simple obstruction all of the symptoms can be relieved by such means plus adequate parenteral administration of fluids and electrolytes. It has also been demonstrated that this can be very dangerous, because the damaged bowel may perforate after all symptoms have been relieved, and fatal peritonitis may, and often does, result.

STRANGULATION OBSTRUCTION is an even more complicated problem. All of the phenomena previously mentioned are present, plus hemorrhagic infarction of the gut, and usually a closed loop which will cause death even in the absence of arrest of the fecal current. At the onset, the venous flow is arrested first so blood continues to flow into the strangulated mass for a time. If the strangulated mass is large, the blood loss may be sufficient to cause severe shock. After a few hours the ischemic conjested bowel becomes infected and ulcerated. Bacteria invade the peritoneal cavity through its wall. Perforation is inevitable unless death precedes it. It should also be remembered that local strangulation, gangrene, and perforation may take place under a single "violin string" adhesion producing an otherwise "simple obstruction".

There is no remedy for strangulation obstruction except surgery, which in the first few hours may be extremely simple, but which after a short time entails resection of gangrenous bowel in a contaminated or infected field, a procedure which triples the risk.

There can be no doubt that our vastly increased knowledge of fluid and electrolyte problems and the introduction of tube decompression have improved our results significantly. Miller's series[1] came from a period when neither was available. Moss's patients[2] had the benefit of the pioneer work of Haden and Orr on NaCI replacement, and of Wangensteen's duodenal decompression, and the mortality was reduced 50 per cent. However, one should remember that the average duration of the obstruction was also reduced from 42.7 hours to 35 hours and this factor must be credited with a considerable part of the gain. Becker's cases[3] had the advantage of a much more adequate knowledge of fluid and electrolyte problems, including the vital part played by potassium, plus long tube decompression of the bowel. His series showed another 50 per cent improvement. But they also had the benefit of a vastly improved resident training program which has improved surgical results in all categories of surgery in our hospital .

Becker[3] analyzed the major factors influencing prognosis and found them to be: 1) The age of the patient, 2) the site, 3) degree, 4) type (strangulation), 5) duration, and etiology of the obstruction. It is immediately apparent that only one of these, the duration, is subjected to control, and since the mortality in the first 24 hours was only one-fourth (5.8 per cent) what it was after that time (23.7 per cent), it is equally obvious that this is the factor on which we must concentrate our efforts.

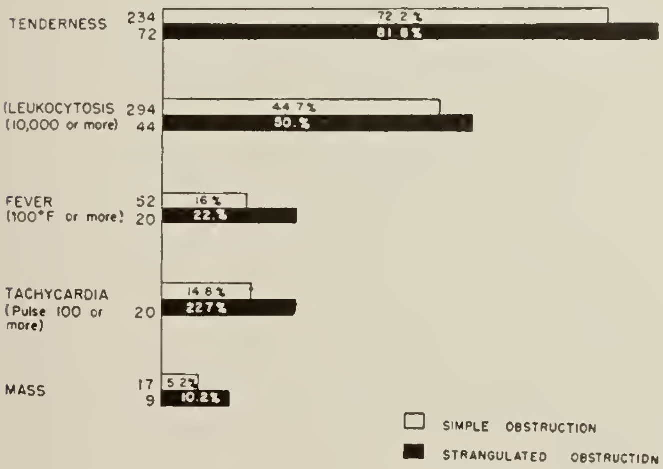
However, some of the other factors are worthy of comment:

1) Clearly we can do nothing about the age of the patient, but I would like to comment (not entirely facetiously) that the victim will get no

younger while you temporize; aged patients rarely have the pair of healthy young kidneys that can do so much to correct our errors in fluid and electrolyte replacement; and aged cardiovascular apparatus cannot readily adapt itself to wide variations in circulating blood volume; and the arteriosclerotic intestinal blood vessels of the aged become thrombosed under the conditions of strangulation much sooner than do those of healthy young people. It is therefore even more imperative that the obstruction be relieved early.

2) Partial obstruction had a mortality two-thirds as high (14.7 per cent) as that of complete obstruction in Becker's[3], so it is not to be regarded lightly.

3) The mortality rate of strangulation obstruction (30.5 per cent) was more than twice that of simple obstruction (14.1 per cent), but the difference was not as great as the difference in mortality before and after the lapse of 24 hours (4 to 1) in all types of cases. The bowel wall, including its blood vessels, remains viable for several hours after strangulation becomes complete. During that period, simple release of the strangulation and obstruction is all that is required and the risk will be only slightly higher than in simple obstruction. (Fig. 1).


RELATIVE INCIDENCE OF VARIOUS "SIGNS OF STRANGULATION" IN 412 CASES OF ACUTE ADHESIVE ILEUS

It should be obvious that the duration of the obstruction is not only the most important single factor in prognosis but that it is the only controlled one. Therefore, early diagnosis is essential to good results.

The cardinal symptoms and signs of intestinal obstruction are so well known that I shall content myself with a discussion of some neglected diagnostic measures.

In the first place, it has long seemed to me useful to bear in mind the frequency of the various types of obstruction in relation to the age of the patient.

1) Intestinal obstruction present at birth or very soon thereafter, is almost invariably due to either aplasia of the bowel or malrotation of the midgut, with resulting volvulus. If the anus is patent, aplasia of the small bowel is most probable. The duodenum is the least frequent site and the ileum the most common. There are frequently multiple sites.

2) Vomiting suggestive of obstruction developing from 2-6 weeks after birth, is probably due to pyloric stenosis, and does not properly belong in the category of intestinal obstruction.

3) Obstruction occurring within the following two years is due to intussusception in 80 per cent of the cases.

4) After the first two years, obstruction is most often due to adhesive bands or strangulated hernia. The presence of an abdominal scar is strongly suggestive of obstruction due to adhesions. Hernias are usually obvious, if they are looked for.

5) After the age of 40, obstruction of the colon by malignant disease becomes increasingly common, although actually it may occur at almost any age. However, it never becomes the commonest cause at any age.

Actually, of course, any of these conditions, except atresia, may cause obstruction at any age, and in particular one must be constantly on the alert for strangulated hernia and adhesive bands, for combined they account for 70-75 per cent of all the cases of obstruction. Obstruction due to adhesions is likely to re-occur, so a history of a previous single episode is of great significance.

The less common etiologic factors, such as gallstones, bezoars, and mesenteric vascular occlusion, should be kept in mind, but their infrequency makes them far less important than the ones previously discussed.

PHYSICAL EXAMINATION

I shall touch lightly on the physical examination. The coexistence of intermittent colicky abdominal pain and constipation, with or without nausea and vomiting is so constant and characteristic that the diagnosis is rarely difficult and can hardly fail to be suspected.

Distention is greater the lower the obstruction. It may be entirely absent in high obstructions.

Tenderness is often absent and its presence suggests peritonitis, local or general, or strangulation; or both.

A mass is palpable more often than is generally realized, especially after partial or complete decompression of the stomach and proximal bowel. This finding suggests the presence of strangulation, mesenteric vascular occlusion, or of a closed loop obstruction.

All common sites of hernia should be examined in all suspected cases. Femoral herniae especially are likely to be overlooked and they become strangulated relatively much more often than do inguinal herniae.

Scars on the abdomen are always suggestive.

Peristalsis, audible or palpable, is very significant. Peristaltic rushes coincident with waves of severe pain are practically pathognomonic of mechanical obstruction. The absence of all peristaltic sounds suggests paralytic ileus or mesenteric vascular occlusion. It should not be forgotten, however, that late in mechanical obstruction, intestinal paresis occurs and all peristaltic sounds disappear.

The common causes of paralytic ileus should be sought. Pneumonia, renal calculi, and rupture of the kidney are common and confusing. Peritonitis also causes adynamic ileus but usually offers no great difficulty in diagnosis except when mechanical obstruction coexists—which is by no means rare.

LABORATORY FINDINGS

The blood count is normal in simple obstruction until dehydration becomes marked and then hemoconcentration becomes evident. A leukocytosis in the presence of obstruction suggests peritonitis, strangulation, or mesenteric vascular occlusion. If the diagnosis is obscure the same finding calls for investigation of all other possible sites of infection, especially the lungs, the kidneys, the pelvic organs and the appendix.

The blood chemistry is of value only in estimating the degree of disturbance of the fluid, electrolyte, and acid base balances. It is a guide to prognosis and treatment rather than to diagnosis.

Urinalysis should, of course, be routine. The presence of red blood cells or pus is suggestive of reflex ileus from ureteral or renal calculi, infection, or trauma. The presence of sugar calls for investigation of possible impending diabetic coma.

The x-ray examination is the most valuable single method of examination and should be employed in all suspected cases. Its value lies in the fact that except in infancy, gas can never be seen in the normal small intestine except occasionally in the terminal ileum. In ileus, mechanical or paralytic, the obstructed or paretic bowel is distended with gas and fluid. If x-ray views are taken in suitable positions, therefore, fluid levels are evident. These do not tell us anything about the nature of the obstruction. The gas is an excellent contrast medium, showing the position, contour and often the mucous membrane pattern of the distended loops. From these facts we can usually tell what parts of the bowel are distended. The herringbone mucous membrane pattern of the jejunum, the absence of pattern (the simple cylinder) of the ileum; and the haustrations of the colon are usually readily recognizable. The disposition of the colon in the abdominal cavity is distinctive. Distended loops of small bowel tend to arrange themselves in a series of transversely placed cylinders unless fixation at some point or points disarranges them. Such a deviation from the horizontal arrangement often gives a clue to the location of the obstruction. The absence of gas in the colon associated with distended small bowel loops indicates that the colon is not involved, and mechanical small bowel obstruction is almost certain. In paralytic ileus and in partial obstruction, the colon as well as the small bowel is usually gas-filled, and the same is frequently true of mesenteric vascular occlusion. The colon distended proximal to a certain point and empty beyond it indicates, probably, a carcinoma of the colon. In any suspected case, a barium enema may be given under fluoroscopic control to confirm the diagnosis. Separation of the distended loops of bowel by a relatively opaque medium indicates fluid in the peritoneal cavity. Not infrequently a mass is outlined by the surrounding gas-filled bowel. In volvulus of the sigmoid, which is often confused with carcinoma of the colon, when the rectum and recto-sigmoid are filled with barium the rectosigmoid terminates in a characteristic parrot-beak shape that is distinctive and diagnostic.

In short, a competent radiologist is the most valuable consultant that a surgeon can have in the diagnosis of this disease, and the neglect of this facility, still common in our hospital and probably in yours, should be corrected.

TREATMENT

From the foregoing facts and opinions, a plan of treatment can be evolved.

First, let me remind you that if the obstruction can be diagnosed, located and relieved in the first 12 to 24 hours after the onset, there will be no serious disturbance of fluid, electrolyte or acid base balance, and no significant protein loss. Distention will be slight or absent. Strangulated bowel will usually still be viable. Infection of the bowel wall and peritonitis will be insignificant or absent. Under these conditions, there will be little need for preoperative preparation. A Levin tube in the stomach to prevent vomiting and aspiration, and an infusion of glucose and isotonic salt solution started while the operating room is being prepared will be all that is needed in most cases. The mortality should not exceed 5 per cent, except in malignant disease of the colon.

When obstruction has existed for many hours and both distention and severe constitutional disturbances are evident, immediate surgery is foolhardy. The chance for safe surgery has been lost and it is in such cases that modern preoperative preparation pays big dividends. Infusions of water, electrolytes, plasma, and blood can restore the patient's blood and tissue fluids to approximately normal levels and the improvement in operative risk fully justifies the danger of the additional delay. We are actually gaining time for we turn back the clock on the fluid, electrolyte and protein disorders by many hours. It goes without saying that this program of rehabilitation must be checked constantly by blood chemistry determinations, the hematocrit; and, if possible, blood-volume estimations. Bearing in mind the inherent difficulty in interpreting the blood electrolyte findings and the possible errors in the technical procedures involved, one must also take into account the estimated loss, based on the history, and the clinical evidences of depletion of the various electrolytes, especially potassium.

In such late cases, distention of the bowel may be extreme and not only does this tend to perpetuate the constitutional disturbances and imperil the circulation of the bowel, but if the abdomen is opened under such circumstances the operative procedure may be extremely difficult and dangerous. The bowel wall is ischemic, often ulcerated and tears easily. Infection of the wall and of the peritoneum add to the hazard inherent in the obstruction itself.

Cohn and associates [5,6] have demonstrated that the parenteral administration of suitable antibiotics will prolong the life of the bowel wall and diminish the toxemia in such circumstances, but decompression is extremely desirable and one is fully justified in spending some time to turn back the clock on the LOCAL condition also. Since several hours will be required for the process of fluid and electrolyte replacement, this time can profitably be spent in attempts to decompress the bowel by means of a long tube. No categorical estimate of a justifiable amount of time can be made, but this much is certain: if a long tube cannot be introduced beyond the pylorus within one to two hours, the attempt should be abandoned. If the tube does pass the pylorus and decompression proceeds satisfactorily, with progressive improvement in the patient's condition, several more hours may profitably be spent on the process of decompression. If improvement is not rapid or if the patient's condition deteriorates, surgery should be undertaken promptly, for some complication, probably strangulation, is certainly present.

Becker[3] made a special effort to evaluate the long tubes, and has generally concluded as follows: "......tube decompression was employed as definite or adjunctive therapy in 717 cases and it was abused in 94 (13.1 per cent) of them. It is an impressive fact that abuse of the tube was attended by a mortality of 58.5 per cent. He defined and classified abuse of the tubes as follows:

1) Patients treated by tube decompression for 12 hours or more and then found at operation to have strangulation.

2) Patients treated by tube decompression alone and strangulation found at autopsy.

3) Patients who were treated by decompression alone and died of simple obstruction.

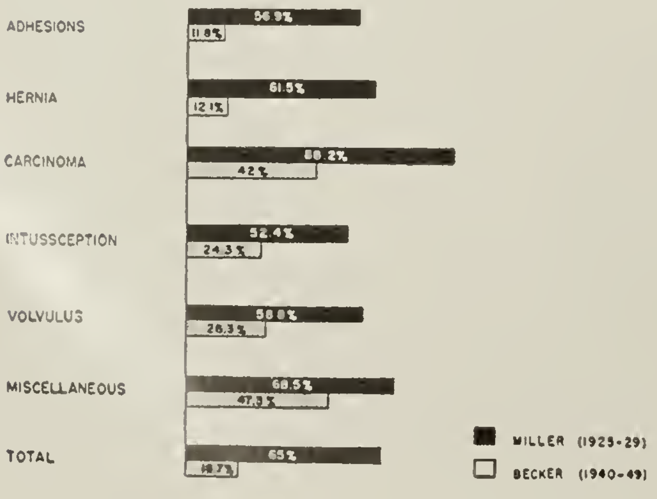
4) Patients initially in good condition, treated by protracted intubation until marked deterioration set in, and then died following operation for simple obstruction.

There is a simple answer to the inexcusable practice of unduly prolonged tube decompression. If the patient's condition ceases to improve when decompression seems to be progressing satisfactorily, immediate operation is imperative, and if after decompression seems to be complete, definite and unequivocable evidence of release of the obstruction does not promptly appear, operation is mandatory.

Many surgeons, including us, have felt that tube decompression was a safe method of definitive treatment in one type, and only one, of acute obstruction. That is the obstruction that develops very soon after an abdominal operation. Under these circumstances, the difficulty is usually due to recent fibrinous adhesions and if decompression is effective, the obstruction will usually be relieved. We have believed that in such cases, strangulation almost never occurs, and that if the surgeon does not obstinately persist in the use of the method after failure is obvious, it is a safe and valuable method. Becker's figures are very disconcerting. He found 57 cases due to recent adhesions in his series. The mortality was 15.5 per cent, as compared to a general mortality in adhesive ileus of 11.8 per cent, and strangulation was present in 10.2 per cent. We now think that the postoperative time limit employed—one month—is too long, for after ten days, the adhesions are fibrous rather than fibrinous unless an abscess is present. He himself felt that the chief cause of death was overly prolonged use of tube decompression or of other non-surgical methods, but there is no escaping the 10 per cent incidence of strangulation which is inevitably fatal when not relieved by surgery.

Strangulation is the greatest pitfall in the treatment of obstruction by intubation, or for that matter, by any method that entails delay of surgical treatment, and it is so common that all cases should be treated under the assumption that it is present, as it was in over one-fourth of Becker's series of 1007 cases and in 32.3 per cent of those due to adhesions. Furthermore, the idea that one can tell whether or not it is present is fallacious. The conditions usually associated in our minds with strangulation are fever, tachycardia, localized tenderness, a palpable mass and leukocytosis. In the Charity Hospital series, these signs were only slightly more common in strangulation obstruction than in the simple variety. (Fig. 2). In the absence of a strangulated external hernia, one can rarely be sure whether or not strangulation exists.

MORTALITY OF INTESTINAL OBSTRUCTION IN THE YEARS 1925-1929 AS COMPARED TO THE YEARS 1940 - 1949



In view of these facts, one should look upon the long tubes as primarily tools to be used in the preparation of badly distended patients for surgery. When in the course of such preparation, the obstruction is released, one should be duly grateful, but not over-impressed, for undue optimism may cost the next such case his life.

CONCLUSIONS

1. Every case of acute mechanical obstruction should be approached with the idea that it is to be relieved by operation.
2. Within the first 24 hours after the onset, surgery should be resorted to without delay, except in very early postoperative obstruction. Preoperative preparation should be minimal.
3. When serious distention and fluid and electrolyte depletion are present, a prompt, energetic and determined effort should be made to correct them, but this program should be looked upon as preoperative preparation rather than definitive treatment, and should not be prolonged beyond its usefulness as such preparation.
4. The long tubes are extremely dangerous in the hands of optimists and vascillators.
5. In obstruction due to recent postoperative adhesions (ten days), the long tubes will frequently release the obstruction, but if unequivocal evidence of such release does not appear promptly after decompression is affected, further delay is unjustified.
6. Every case of intestinal obstruction should be treated on the assumption that strangulation is present.

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Cord Tumors*

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INTRASPINAL TUMORS, often loosely referred to as cord tumors, are much more common than they are usually thought to be. They can manifest their presence by the rapid development of symptoms and signs and occasionally by sudden dramatic effects. But more often the progression is insidious, the clinical changes subtle and the nature of the disease mistaken for some more common ailment until paralyses may unfortunately have developed to the point of being irreversible. Early recognition is all the more important since primary intraspinal tumors are usually benign and surgically curable, while many of the others can be controlled for relatively long periods.

Intraspinal tumors may arise from the cord itself, the nerve roots, the meninges, the vascular network of or about the cord, the epidural fat and lymphatics, the vertebral column, or occasionally from paravertebral structures from which there is intraspinal extension of the growth. In addition, there are metastases from tumors elsewhere in the body.

The tumors are classified with regard to their anatomical location as intramedullary and extramedullary and the latter as intra- or extradural. Some extramedullary tumors are both intra- and extradural and some, such as nerve sheath tumors, are both intra- and extraspinal being connected by a narrow tube of tumor through the intervertebral foramen or the interlaminar space; these are known as dumbbell or hourglass tumors.

The incidence of intraspinal tumors is about the same in the two sexes though meningiomas, one of the two commonest primary tumors, have a higher incidence in women. Tumors of the spinal canal are occasionally encountered in the earliest years of life and in people over sixty-five, but more frequently in the third to sixth decade and most of all between the ages of thirty-five to fifty years. Considering all types of tumors, they are found with about equal frequency at the cervical, thoracic and lumbosacral levels of the spinal canal although their occurrence at the extremes, namely the uppermost cervical and the sacral levels, is exceptional. Certain types of tumors more characteristically develop or have a higher incidence at special levels. For example, the meningiomas which are extramedullary tumors are more often found in the thoracic than in other regions; the intramedullary gliomas occur most often (50%) in lumbosacral segments.

PATHOLOGY

The same types of neoplasm are found intraspinally as intracranially. A classification of the intraspinal tumors encountered on the neurosurgical service at the New York Hospital in the past twenty years is shown in the following table.

- Intramedullary
  - Ependymoma
  - Other gliomas
  - Hemangioma ('blastoma)
  - Angioma (vascular anomaly)
  - Metastatic tumors
- Extramedullary, Intradural
  - Meningioma
  - Nerve sheath tumors
  - Hemangioma ('blastoma)
  - Angioma (vascular anomaly)
  - Epidermoid, dermoid and teratoma
  - Metastatic tumors
- Extradural
  - Meningioma
  - Nerve sheath tumors
  - Lymphosarcoma
  - Hemangioma ('blastoma)
  - Lipoma
  - Chordoma
  - Chondroma
  - Cholesteatoma
  - Osteogenic tumors of vertebrae (benign and malignant)
  - Metastatic tumors
  - Dural cyst

In this list the angiomas (or vascular anomalies) and the dural cyst are not true neoplasms. Other non-neoplastic lesions which in a sense are tumors in that they are space-occupying include: syrinx, intramedullary and extramedullary abscess and granuloma (tuberculoma and gumma), and the herniated nucleus pulposus; the last occurs in numbers that far exceed all types of intraspinal tumors combined and the clinical manifestations are often difficult, if not impossible, to differentiate.

Of the primary tumors of the cord, roots and

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meninges 79 per cent were either meningiomas or nerve sheath tumors, both of which are benign tumors which can usually be removed surgically. Of all intraspinal tumors coming to operation (exclusive of the herniated nucleus pulposus) the meningiomas constituted 28 per cent, the nerve sheath 24 per cent and the gliomas (including ependymomas) 24 per cent.

Meningiomas are variously known as dural endothelioma, meningeal fibroblastoma, meningothelioma, arachnoid fibroblastoma, dural sarcoma, psammoma, and by similar names which indicate the slight variations of the etiological and cytological nature of the tumor. They are as a rule very slow growing tumors and patients often give a long history, yet occasionally the history is short and the advance of symptoms rapid.

The *nerve sheath tumors* are also known as neurilemmoma, neurinoma, schwannoma, neurofibroma and perineural fibroblastoma. They are sometimes multiple particularly when they occur as a manifestation of neurofibromatosis (Von Recklinghausen's Disease.) While they are usually attached to a nerve root between the cord and dura, they may exist outside the dura and occasionally occupy both an intra and extradural position. They are almost as common as the meningioma, nearly always benign, encapsulated, and of slow growth, usually simulating the meningioma in their clinical picture.

The gliomas which are the intrinsic tumors of the cord arise from interstitial elements of the neural parenchyma. Contrary to what is found in the brain, where glioblastoma is the commonest and ependymoma one of the least common glioma, the ependymoma constitutes about 60 per cent of the tumors of the cord and filum terminale, and glioblastoma is rare. The astrocytoma and oligodendroglioma make up most of the other gliomas of the cord. All types of glioma of the cord are relatively slow-growing and not regarded as malignant as are gliomas of the brain.

CLINICAL PICTURE

The symptoms that result from tumors of the spinal canal can be conveniently divided into three phases. The first of these is involvement of nerve roots; the second, beginning compression of the cord; and the third, extreme compression of the cord resulting in transverse myelitis. In the case of tumors which occur below the cord, which terminates at the upper level of the second lumbar vertebra, there are of course no long tract signs but there is a counterpart to the three phases in that the initial symptoms result from involvement of one or a few nerve roots on one side; secondly more roots on both sides become involved; and finally paraplegia occurs.

FIRST PHASE. Pain is the prominent symptom of nerve root involvement and is present in some degree in over 80 per cent of intraspinal tumors. It is sometimes absent or of low-grade intensity particularly in slowly growing intramedullary gliomas. The pain often has a severe lancinating quality and may be constant or intermittent. Its distribution is girdling and it occupies the dermatome corresponding to the root which is involved. It often precedes other symptoms by months or years and it is this feature which accounts for the many mistakes in diagnosis, ill-advised treatments and needless operations on the thorax and abdomen. Straining, sneezing, coughing and even laughing all of which temporarily increase the systemic venous pressure and secondarily the cerebrospinal fluid pressure can induce or aggravate the pain. A special characteristic is the frequency with which pain is enhanced when the patient lies down, compelling him to seek relief in sitting up or walking about.

Pain resulting from tumors in the cervical region occurs in the occipital region, neck, shoulders, scapular and pectoral regions and into the upper extremities depending on the roots involved. While the superficial dermatomes of the cervical nerves are not over the scapular and pectoral regions, the muscles of these regions are supplied by cervical sensory nerve roots. Stiff neck, torticollis, and loss of the normal anterior curvature of the cervical spine are common findings in the presence of these tumors.

Pain resulting from tumors in the thoracic region is characteristically girdling—usually unilateral or at least more prominent on one side. The thoracic dermatomes takes a downward diagonal course from the back to the front of the chest and abdomen, the last thoracic dermatome extending into the groin. The pain may simulate intercostal neuralgia, biliary tract disease or renal colic in its distribution.

Pain from tumors in the lumbosacral region radiates into the lower extremities, saddle, perineal and genital regions. The pain in these areas must be differentiated from common sciatica which is most often due to a herniated nucleus pulposus.

In addition to pain, the involvement of a sensory root may cause numbness, paresthesias or hypersensitivity in the corresponding dermatome. Though these sensations may be very real to the patient, it may be impossible to demonstrate sensory changes because of the wide sensory overlap from adjacent dermatomes.

The involvement of motor roots by the tumor may produce localized muscle atrophy, fibrillations and weakness or loss of a tendon reflex. Such defects are particularly obvious when muscles of the hand or the region of the ankle are involved.

Second Phase. As the cord begins to become compressed by the growing tumor, symptoms appear as a result of involvement of the long fiber tracts. Unilateral compression of the cord produces the Brown-Sequard Syndrome characterized by homolateral muscle weakness, abnormal reflexes, impaired touch, position and vibratory senses, and contralateral loss of pain and temperature senses. Compression of the anterior part of the cord causes loss of pain and temperature sense, whereas compression of the posterior columns causes a decrease in deep sensibility such as muscle and joint sense resulting in ataxia below the level of the lesion.

The development of symptoms in the early stages of cord compression is often subtle. Sensory changes appear much below the level of the involved segment of the cord, and motor changes may be evidenced by difficulty in walking, out of all proportion to discernible changes in muscle strength, muscle tone or tendon reflexes.

Intramedullary tumors in addition to their relative painlessness can sometimes be discerned by an encircling band of analgesia corresponding to the segmental level of the lesion, by early loss of sphincter control, and by preservation of saddle sensation when the sensory level is at or above the mid-trunk.

Third Phase. When the compression of the cord becomes more advanced there is complete or nearly complete loss of all but reflex nervous function below the level of the lesion. If the advent of complete compression has not been too rapid the tendon reflexes will be exaggerated. certain pathologic reflexes will develop and the muscles will be spastic. If a sudden or rapidly developing myelitis occurs the muscles will be flaccid and all reflexes absent for a period of time, sometimes up to many days.

DIAGNOSIS

A comprehensive history detailing the nature and chronology of symptoms is particularly valuable in apprehending cord tumors. A general physical examination and adequate laboratory studies will often disclose the presence of tumor or disease elsewhere in the body which secondarily involves the cord.

The neurological examination of the patient must be complete from head to foot and not limited to testing functions at or below the level of a suspected tumor. The examiner must keep in mind that a brain tumor in certain locations such as a parasagittal tumor involving the motor and sensory cortex on both sides can produce neurologic changes easily confused with those of a cord tumor. Also symptoms of the majority of inflammatory and degenerative diseases of the central nervous system may simulate those of cord tumors.

A practical knowledge of the segmental innervation of the principal muscle groups of the body is important. In the early phases when there may be only involvement of one or two nerve roots the recognition of a local muscle weakness can be highly useful. This is particularly true of the extremities where specific motions of the shoulder, elbow and fingers have specific segmental representation. Abduction of the arm at the shoulder is controlled principally through the fifth cervical root, flexion of the forearm by the sixth, extension of the forearm by the seventh. In the lower extremity dorsiflexion of the foot and toes is controlled principally by the fifth lumbar, and plantar flexion by the first sacral roots. And there are other motor functions whose derangement have just as definite specificity of root or segmental involvement.

Paralysis of the first thoracic motor root results in lid ptosis and miosis of the homolateral eye without the vasomotor and sudomotor effects of the complete Horner's syndrome. Compression myelitis at or above the first thoracic segment may produce the complete Horner's syndrome whereas myelitis in the upper thoracic segments below the first thoracic may cause loss of sweating in the hand and face but no ocular changes.

Segmental representation exists in the cord for all tendon and superficial reflexes and the discovery of an absent reflex may give the clue to paralyzed nerve root or to the level of a myelitis. The presence of an exaggerated tendon reflex or a Babinski sign demonstrates only that there is pyramidal tract disease somewhere above the segmental level corresponding to the abnormal reflex.

In the evaluation of sensory changes it is well to examine carefully in the zone of radicular pain where there may be demonstrable sensory loss or hyperpathia. Sensory loss resulting from compression of the afferent tracts in the cord may be complete, partial or disassociated below the level of the lesion. When the myelitis is complete there is a sharp margin of sensory loss which usually corresponds accurately to the upper segmental level of the cord lesion. However, it may not always be possible to recognize the completeness of the myelitis and since sensory levels are lower than the segmental level in the presence of incomplete myelitis the determination of sensory level is of limited value in discerning the site of the tumor.

In testing for sensation it is necessary that all forms of sensation be investigated: touch, pain, temperature, vibration and position senses. A dissociation of sensory loss such as loss of pain and temperature sense with preservation of other forms indicates discrete involvement of the spinothalmic tracts or of the anterior commissure where the pain fibers cross. In the case of a centrally placed tumor of the cord or of a syrinx that sometimes accompanies a tumor the involvement of the anterior commissure over a distance of several segments may cause a girdling band or "waistcoat" area in which only pain and temperature are lost. It is well to remember that the tracts for pain sensation are crossed tracts and those for touch, position and vibration are not, which accounts for the dissociated sensory changes characterizing the Brown-Sequard syndrome.

When compression of the cord is complete or nearly so above the second lumbar segment there is loss of sweating below the level of the lesion. This can easily be tested for by feeling the degree of moisture or greasiness of the skin and does not require complicated testing.

A test that is sometimes useful in locating the presence of an intraspinal tumor is the pain which is elicited with heavy pressure or percussion over the spinous processes overlying the lesion.

Roentgenograms of the spine are an important adjunct to the examination and often special oblique views and laminograms provide information not gained from the routine lateral and anteroposterior views. Among the lesions to be looked for when an intraspinal tumor is suspected are: primary and metastatic tumors of the vertebrae, deformities from recent or old fractures or dislocations, hypertrophic osteoarthritis, osteomyelitis, Pott's disease, Paget's disease, congenital malformations of the vertebrae, paravertebral tumors, calcified tumors in the spinal canal, and erosion of the laminae and pedicles of the vertebrae. Slowly growing tumors in the spinal canal will not be discernible on casual inspection but can be detected by comparing the interpedicular measurements with those of the normal which have been compiled on a standard chart.

Spinal puncture is usually performed at the fourth lumbar interspace unless a tumor is suspected at this level in which case the subarachnoid space can be entered through the sacral hiatus. When the patient is lying quietly in the horizontal position the fluid will rise in the manometer to 150-200 millimeters normally. If there is no obstruction of the spinal canal the pressure will rise and fall promptly on compression and release of the jugular veins. If there is partial obstruction the rise and fall be slower and if there is complete obstruction there will be no change in pressure on jugular compression. However, even in the presence of a block of the canal the pressure will rise if the patient coughs or strains due to engorgement of the numerous veins in the spinal canal below the block which occurs on straining.

The spinal fluid protein is usually increased in the presence of an intraspinal tumor and always increased when a block exists. Also, the fluid is usually xanthochromic below the level of a block and in case the fluid contains blood as a result of a traumatic tap the fluid should always be centrifuged and the supernatant fluid examined for xanthrochromia.

While the information gained by a lumbar puncture is valuable, the procedure should be used advisedly when a cord tumor is suspected. The decrease of pressure below a tumor and the increase above it that occurs with jugular compression may dislodge a tumor or shift the cord so that compression increases. It is not uncommon to find that palsies increase rather rapidly after lumbar puncture and jugular compression when a tumor is present. For this reason it is well to delay the procedure until plans can be made for operation to follow quickly if there is need for it.

Myelography (spinography) is a valuable aid to exact localization of an intraspinal tumor even when clinical tests and roentgenograms of the spine seem to provide adequate localization. The test entails injection of a small amount of radioopaque substance, usually pantopaque, into the subarachnoid space either by lumbar or cisternal puncture, or sometimes both. The course of the material and the point of deformity or obstruction are observed by fluoroscopy as the patient is tilted in various directions. Air can also be employed for myelography but is much less satisfactory as a contrast medium. As an immediate preliminary to operation myelography is now employed in most clinics.

DIFFERENTIAL DIAGNOSIS

In the diagnosis of intraspinal tumors one must differentiate from non-neoplastic diseases that develop within the cord or roots and from conditions which compress the cord and roots.

The principal diseases of the cord that may be confused with tumor are: multiple sclerosis, subacute combined degeneration, myelomalacia, syringomyelia, amyotrophic lateral sclerosis, myeloradiculitis (Gullain-Barre' syndrome) and the Arnold-Chiari malformation. There are other less common conditions but all possess some features that usually distinguish them.

The diseases that occur outside the parenchyma of the cord, some of which cause compression effects, are comparatively few. They include: adhesive arachnoiditis, pachymeningitis, fracture or dislocation of vertebrae, Pott's disease and development anomalies such as platybasia, spina bifida and the Klippel-Feil deformity. The bony deformities can usually be identified by adequate roentgenograms.

The ruptured intervertebral disk provides one of the commonest needs for differential diagnosis from intraspinal tumor. Before the syndromes caused by protrusion of the nucleus pulposus into the spinal canal were established it was not uncommon for neurosurgeons to encounter these lesions when exploring for cord tumor and usually they were regarded as chondromas. Ruptured disk occurs principally at the fifth and sixth cervical and the fourth and fifth lumbar interspaces, although it occasionally is found at other levels. Because the protrusion of the nucleus pulposus is to one side the symptoms and signs are usually unilateral and of radicular nature. However, tumors will sometimes cause similar symptoms for long periods before bilateral signs supervene. Furthermore, a herniated nucleus pulposus will sometimes be of sufficient size and location to make it virtually indistinguishable from a tumor. Paraplegias and spinal block occur too often from herniated lumbar nucleus pulposus to be disregarded as a rarity. A large fragrent of herniated nucleus in the cervical canal can be even more serious since damage to the cord can result. One of the most important disk lesions to be recognized in increasing numbers of late is the chronic hypertrophic ridge that develops particularly in the cervical region as a result of injury to the disk. These lesions compress the anterior part of the cord and also seem to affect the blood supply to the cord in a manner that makes the neurologic changes almost indistinguishable from neoplasm or from certain intrinsic diseases of the cord such as amyotrophic lateral sclerosis.

TREATMENT

Tumors within the spinal canal should be attacked surgically without needless delay once a diagnosis has been made. In the case of rapidly progressing paralysis and particularly if there is progression after a lumbar puncture, time is of the essence and a few hours' delay in operation may make the difference between recovery and permanent disability. The technique of laminectomy is well established and there is no reason why any well-trained surgeon could not perform a decompression if emergency requires. This is not to say, however, that the technique of removing a tumor may not sometimes be among the most exacting of operations.

RESULTS OF TREATMENT

Meningiomas and nerve sheath tumors which fortunately constitute the majority of primary intraspinal tumors can usually be removed completely with negligible risk and with the expectation that full or nearly full recovery of function will result providing paralysis has not existed too long. Many other types of extramedullary tumors both inside and outside the dura can be removed; in those that cannot, the patient's condition may be improved by partial removal of the lesion and suitable decompression.

Intramedullary tumors are less favorable but occasionally an ependymoma can be totally removed and spectacular operations have been performed in which centrally placed ependymomas which extend for relatively long distances in the cord are successfully peeled out. Other types of intramedullary tumor usually defy other than partial removal and perhaps evacuation of a contained cyst. However, the encouraging aspect of these cases is that often by a combination of partial removal, decompression laminectomy, and roentgenotherapy, the continued presence of the tumor is not incompatible with reasonably well preserved function for many years.

When intractable pain accompanies an incurable intraspinal tumor, rhizotomy at the level of the tumor, or spinothalamic tractotomy at a higher level, is always to be considered and preferably at the time of the initial operation.

After operation when patients are recovering from temporary loss of neurologic functions, or in those left with permanent defects, the great risk to rehabilitation and at times to life arises from decubitus ulcers and from complications incidental to impaired function of vesical sphincters. The importance of intelligent nursing care, physiotherapy, and proper urological management can hardly be overemphasized. There are many practical matters to be considered, but a few deserve special consideration.

The greatest aid in the prevention of decubitus ulcers which occur during the early post-operative period and while a paralyzed patient is confined to bed has come from use of the alternating air mattress. This mattress is made up of a series of air compartments, alternate ones of which are automatically and continuously filled and emptied. This results in constant change of the areas of pressure against the patient's body. During the past five years on the service under my direction, decubitus ulcers have been reduced to a minimum as a result of the use of this mattress.

There are certain practical points to be considered in the management of a cord bladder. Immediately after the onset of paralysis, a Foley catheter should be used for continuous drainage of the bladder. For a while, no further efforts are required than proper care of the catheter and judicious use of urinary antiseptics and antibiotics. Depending on the severity of the cord lesion and how well the complications of urinary infection have been avoided, recovery of full or a considerable amount of function may take place within a period of days or weeks. If the lesion involves the cauda equina or conus medullaris the chances of the patient's developing any reflex function of the bladder is poor, whereas the prospect is much more hopeful if the lesion is higher in the cord.

As soon as the patient can be taken out of bed and placed in a standing or sitting position the catheter can be removed for trial periods of two or three hours. A cystometric examination at this time may be helpful in identifying the presence of sensation and tone of the bladder. Many patients after a while will develop an efficient cord bladder which can by one means or another be emptied or nearly so with fairly long periods of continence between urinations. Others fail to do so, and many of these have been benefited by transurethral resection of the vesical neck. Occasionally the addition of pudendal neurectomy or interruption of certain sacral nerve roots has been reported to have benefit.

In the more severely paralyzed, extreme spasticity and mass reflexes become a major problem in management. These conditions are always made worse as long as there is any infection present, as from a bed sore or a urinary infection, and correction of the infection will often end the problem. Curare appropriately administered can be used to an advantage for a limited period of time. In the occasional protracted case of spasticity and reflex spasm other means must be employed. Strong adduction of the thighs is one of the commonest hindrances to walking and can be benefitted greatly in selected cases by obturator nerve section. In the more severe cases, there is recourse to converting a spastic paralysis to a flaccid one by performing anterior rhizotomies from thoracic 10 to sacral 1. In some cases a selective and partial rhizotomy will overcome the spasticity and contraction spasms yet preserve some voluntary motor function. If any sensation exists it is always best to preserve this at all costs, but if anesthesia is complete along with spasticity and mass reflexes in the lower limbs, the condition may be controlled without operation by paralyzing the lower thoracic and lumbosacral nerve roots by the introduction of absolute alcohol into the subarachnoid space.

It is understood of course that if ganglion cells or long fiber tracts in the cord are completely destroyed, regeneration not is possible. For several years, there has been an interest in the possibility that a polysaccharide (Piromen) might be useful in stimulating regeneration of fiber tracts in the cord, but whatever slight effect the drug may have in this regard seems to be of no practical importance. The actual recovery from lost nerve function occurs only when tracts or ganglion cells are not damaged to the point of irrecoverability.

Much of rehabilitation has to do with developing any residual function to the utmost so that it can compensate for what has been lost. But most of all, rehabilitation has to do with sympathetic and understanding encouragement from those who have the patience to provide it, and upon the will of the patient to make his best efforts.

If you would escape criticism, you must be satisfied to stay in the background.

Alcoholism: Ill Effects on Body and Mind

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THIS DISCUSSION will be about the ill effects of alcohol on the body and mind. No one has the complete answer, but everyone has his obligations to do what he can in correction of this evil.

Education in regard to alcohol is the weapon to be used in fighting this disease. Without education in regard to harmful effects this is difficult to control. It might be well to review certain facts about alcohol such as the following: Ethylalcohol, which is the principle one that is used by the alcoholic, is found in fermented, vinous and distilled beverages. Alcohol is a depressant drug, useful for many mechanical, pharmaceutical, and scientific purposes. There are several kinds of alcohol, METHYL, ETHYL, PROPYL, BUTYL, and AMYL. All of these are poisonous, some more than others. Ethyl is the kind found in beer, wine, whiskey, and nearly all intoxicating drinks. Webster defines ALCOHOL as "a colorless, volatile, inflammable liquid, C_2H_5OH, which is the intoxicating principle in fermented and distilled liquors;—called also ETHYL ALCOHOL and ETHANOL." In industry, alcohol is so important that it is classed as one of the six most necessary organic substances. It is next to water in importance; it is useful in the manufacture of hundreds of articles. Methyl or wood alcohol, is sometimes drunk by chronic drinkers. The technical terms used by the Federal Government in describing alcoholic beverages are: distilled spirits, wines, and fermented malt liquors. Alcohol is an irritant, habit-forming drug with anesthetic characteristics. It comes under the general classification of narcotics and although different from morphine or opium it is frequently a forerunner of taking of these others. Alcohol cannot be used to build or repair body cells, nor can it be stored for use in the body. It has caloric values, but there are no vitamins present to be stored for future repairs. The noticeable effects of alcohol are not physical but physiological due to the influence of the drug upon the brain and the central nervous system. The effects which are the most important to individuals and to society are upon feelings and behavior and eventually upon the personality. Alcohol depresses the function of the brain and decisions made while under the influence of even very moderate quantities of alcohol may be un-trustworthy due to the effect of the drug upon normal caution, discrimination, restraint and reticence. To be sure this is not true in every case, but is always a chance of its effect. We know that alcoholism is the end result of drinking, but do we know that it is our fourth public health problem? About one drinker in fifty becomes alcoholic. While some personality traits increase the risk of alcoholism, the disease is, in every case, the result of drinking and no one is immune. The alcoholic invariably involves himself and family in a series of crises which usually require the attention of social agencies and economic help from friends or organizations. The most important cause of drinking is tradition, custom—the social pattern. The second most important cause of drinking is advertisement stemming from the profit motive involved in the liquor traffic, and its widespread promotion. The individual motives contributing most heavily to drinking are these: a feeling of inferiority, the desire to repress inhibitions and promote conviviality, and the urge to conform. Alcohol is absorbed directly from the stomach and small intestine into the blood, and the degree of intoxication is determined by the degree of alcohol concentration in the blood. Most of the alcohol absorbed remains in the blood and tissues until oxidized, and it is not stored as vitamins for future reserve for food. Oxidation of alcohol liberates heat calories, but the body can use daily only about 1600 calories from this source. Because alcohol, as above stated, has no vitamins, minerals or proteins, the caloric intake creates a caloric vitamin imbalance which is responsible for most of the physical troubles of the drinker. Alcohol dilates tiny blood vessels which cause skin temperature to rise, making the person feel warmer, but actually the body temperature drops and resistance to cold is lowered. The physical condition of the alcoholic predisposes him to disease and lessens the likelihood of recovery in case of serious illness if this has been going on for some time. Alcoholism is not inherited, although a predisposition to alcoholism may be. The physical and psychological troubles of children of psychopathic alcoholic parents are usually due to neglect, and unfavorable environment. Inherited physical inadequacy may be caused by faulty nutrition of the mother, due to her drinking. The central nervous system is directly affected by alcohol intake. The feeling of stimulation from alcohol occurs because of the release of inhibitions and the submersion of anxieties. Alcohol depresses the higher brain centers which control voluntary behavior. Alcohol affects the learned or more complicated skills first and to a greater degree. Judgment is one of the first functions to be affected by the use of alcohol, and with increasing amounts the impairment becomes greater. Alcohol impairs the discrimination, caution, timing and coordination so necessary in modern society. It gives a false sense of security in a complex situation because it distorts time perspective and gives the illusion of superiority. It increases suspicions; it provides a temporary retreat from the world of reality; it allows a greater expression of immaturity, cynicism, aggressiveness, egotism and self-pity. In moderate amounts it has a measurable effect on speed of reactions, discrimination of sensory perceptions and degree of muscular control. Alcohol does not "cure" inferiority feelings, but through a lowering of judgment it gives shy people a temporary illusion of superiority. Alcohol especially causes those who have marked changes of mood to indulge in extreme forms of behavior. The National Safety Council reports that one in about four highway fatalities is due to alcohol. The medical use of beverage alcohol, except to a very limited degree, is generally discouraged by the medical profession.[1]

Alcohol is not thought of primarily as a stimulant. It does not increase functioning power. In a publication by the British Government it was stated that "alcohol successively weakens and suspends the hierarchy of functions of the brain, and therefore of the mind." The progressive narcotic action of alcohol is described in a syllabus issued for teachers by the British Government, as comprising the following successive steps:

1) Blunting of self-criticism: a) inaccurate workmanship in regard to mathematical calculations or such handiwork as shorthand and typewriting; b) uncritical self-satisfaction of the individual with his work and actions; c) disregard of occurrences and conditions normally requiring caution of act and work; d) trespass upon rules and conventions previously respected; e) impaired appreciation of the passage of time; f) talkativeness; g) an argumentative frame of mind;

2) Interference with the performance of skilled movements. This is indicated by clumsiness of behavior, by slurring of words, and by insecure muscular control.

3) The blunting of senses—of hearing, taste, touch, and vision.

4) The display of the primary emotions. Anger may be displayed at one moment, and affection at another similarly with boisterousness and depression, laughter and tears.

5) The failure to respond to external stimulation and the eventual lapse into a heavy sleep. The habit-forming character of alcohol is probably its greatest danger. It is estimated that 30 per cent of all those who begin the practice of drinking alcoholic beverages become alcoholic addicts, that is, persons who can abandon its use only after prolonged and almost intolerable suffering.[2]

We may ask the question what are the facts about beer even as light as 2.75 per cent by weight? Much of this study was done by Miles at the nutrition laboratory of the Carnegie Institute, in Boston. He states that the beverage used by him was not beer but alcohol, 27.5 grams, and grape juice, 300 cubic centimenters. He also used a non-alcoholic beer which according to his own analysis, proved to have four-tenths of 1 per cent of alcohol in it. The men chosen for this study were willing to give samples and who had nothing against taking alcohol, and they were probably sufficiently virile men and satisfactory subjects. The samples of blood were taken 20, 40, 70, 120 minutes after eight men drank the laboratory beverage. They were given 27½ grams of alcohol in one liter of fluid (1,000 cubic centimeters—that is a pint and three quarters)—within twenty minutes—two and three-fourths per cent by weight; 3.4 by volume; that is, he is taking slightly over a fluid ounce of alcohol—in this 2.75 per cent type of beverage. He noticed that seven of the men showed an increase in pulse rate associated with taking this beverage which amounted to from 4.4 to 17.8 per cent. The maximum effect came from 40 to 70 minutes after drinking when it was over 10 per cent. It was found that following this ingestion of 2.75 per cent alcohol there was an increase in the surface temperature. It was proved that the quantity of alcohol in the urine is practically the same as that appearing in the blood, and it follows the same curve, the same temporal relationship. This proof has been accepted in Germany, Sweden, and England, and his work has been duplicated by men working in connection with police courts. In his conclusion as to scale of toxic symptoms, alcohol in the blood, mg. per cc.: .10, clearing of the head; 0.20, slight fullness and mild throbbing at back of head; 0.30, mild euphoria; 0.40, lots of energy for the things he wants to do; 0.50, sitting on top of the world; 0.70, feelings of remoteness; 1.00, staggers very perceptibly; 2.00, needs help to walk or undress; 3.00, in stuporous condition; 4.00, deep anesthesia, may be fatal.[3]

It is interesting to read that Rudyard Kipling turned against alcoholic liquors upon viewing four children, ages 16 and 17, drinking and seeing the ill-effects.[7]

The question is often raised: Why abstain? This might be answered: It is the best thing for health; it is the best for mental efficiency; it makes for physical efficiency; it means safer living; it makes for self-respect. And in the words of Lowell "They are slaves, who dare not be, in the right with two or three." Often true success depends upon abstinence and, further, you are a steward of your life.[8]

It is listed that the legalized liquor traffic in the United States in 1951, had 472,902 licensed to manufacture and sell intoxicating liquors; of manufacturers, distilleries 125, breweries 329, wineries 625; of wholesalers, liquor 7,638, importers 1,281, beer 12,414; of retailers: liquor 289,359, beer 161,131. To break this down to the quantity of consumption of alcoholic beverages in 1951 in gallons: distilled spirits 193,583,863, wines 132,419,928, beer 2,584,040,664; this is a grand total in gallons of 2,910,044,455; this gave an average of 19 gallons for every man, woman, and child in the U. S. at that time. The American people drank 83,810,485 barrels of beer in 1951. To enumerate the list of crimes which have been given by such organizations as the F.B.I., etc., would be useless at this time as you all are familiar with this information.[9]

It is stated by Dr. E. T. Burke that with the scourge of alcohol there are four grim horsemen constituting the scourges of modern civilization—venereal disease, cancer, tuberculosis, and alcoholism. Your interest as well as mine it not just the question as to whether it is good morals or bad morals to drink or not to drink, but the effects that the drinking has on our populace. The history of drink is nothing new; you as Bible scholars know that "through the long centuries man has loved his liquor. Only here and there did an individual venture to break with ancestral custom. From very early times man has been drinking to excess. Drunkenness is not a thing of yesterday, but a tendency transmitted from hoary antiquity." You will remember that Pliny wrote about wine—as you will remember Pliny was the famous Roman naturalist writer—he stated that "Fifty kinds of generous wines, thirty-eight varieties of foreign wines, seven kinds of salted wines, and eighteen varieties of sweet wines" were described. Drinking in the United States kept pace with the other countries, not only by the laymen but by many of the ministers and other church people. Modern scientists condemn beverage alcohol. The scientist is not interested primarily in the alcohol as a moral or religious question other than from his own beliefs, but from the scientific findings such as proved in the test tube or from the retort. Milton in 1634 expressed his opinion in the following words: "Soon as the potion works, their human count'nance, th' resemblance of the gods, is changed into some brutish form of wolf or bear." Abraham Lincoln in 1855 gave as his judgment "the saloon and liquor traffic have defenders but no defense." Gladstone stated that in 1880, "the ravages of drink are greater than those of war, pestilence and famine combined." To this audience no reference should be made to the history of the present temperance reforms, but it would be of historic interest to know the temperance reform culminated in national prohibition. We would pause to give credit to that outstanding band of people of 1873-74, out of which grew the great national organization of the Woman's Christian Temperance Union. It might be stated that the verdict of history is against alcohol, not as a moral and religious issue alone, but also, as a sociological and economical one. Why should we probably be more concerned with the liquor traffic today than a hundred years ago? In the first place, there is probably much more manufactured and drunk; in the second, we need to weigh alcohol and the machine age. A century ago the travel was largely by the ox cart, the horse wagon and the buggy, and the slower modes of travel. Today we travel by high-speed cars, railroad trains that make 70 to 100 miles per hour, airplanes which are now being flown from a 150 to 300 miles an hour in cruising time. A split second may mean the death of not only the one in control but all for whom he is responsible. Let us suppose that the driver of a car stops at a road-side restaurant and drinks a bottle of beer. Resuming his traveling, his ordinary reaction time of eye-to-hand of about one thousandth of a second is slowed by 6 to 10 per cent. If in an emergency he has to stop quickly his car is likely to stop 15 feet farther along the street "than if his mind and nervous system had not been depressed and their reactions delayed by the drug." Dr. Haven Emerson states that "grown men and women use alcohol often to escape from their worries, their fatigue, the anxieties and disappointments of the day's work." All of you are familiar with the story that the man about town said to the stranger, when the stranger had asked him the way to the hotel, "You go down to the corner, turn to the right, pass three saloons, and the next door is the hotel." To which the stranger replied, "I'll never make it." The question is often asked as to why people drink? It might be said that it is to deaden life's frustrations, to utilize its therapeutic value, to heighten ego, physical craving or desire for a thrill, to foster camaraderie, to assuage social or business pressure, to satisfy appetite created by liquor propaganda.

There are two classes of alcoholic drinks: fermented and distilled. They are differentiated by the method of production. Beer, ale, and wine are made by a process called fermentation. Distilled liquors include brandy, whiskey, gin, and rum; they are so named because they are made by distillation, and contain much higher proportion of alcohol than the fermented liquors. The proportion of alcohol in the most popular alcoholic drinks is as follows: beer, 5 per cent; ale, 7 per cent; wine, 15 per cent (except fortified wine which sometimes has as much as 45 per cent alcohol); rum, 54 per cent; gin, 52 per cent; whiskey, 40 to 50 per cent. There are two kinds of fermented drinks: those made from plant and fruit juices (wines) and those made from grain (beers). Fermentation is from the Latin *fervere* which means "to boil". The boiling is caused not from heat, but from yeasts.

Some of the most popular misconceptions about alcohol may argue that alcohol is a stimulant, that alcohol is a food, that alcohol aids in digestion, that alcohol relieves fatigue, etc. Alcohol as a narcotic is defined by Webster as "a drug which in moderate doses allays sensibility, relieves pain, and produces profound sleep, but which in poisonous doses produces stupor, coma, or convulsions." It is known now by the anesthetist that there are other preparations or other drugs or agents much safer than alcohol to be used as an anesthetic. People who take opium or cocaine are generally aware of their narcotic and habit-forming influence. Many who consume alcoholic beverages either do not know or do not believe that alcohol belongs in the same category.

Of the many people who have been interested in the field of alcoholism, Dr. Chevalier Jackson of Philadelphia states, "Many researches have proved conclusively that the most moderate drinking lowers efficiency and at the same time exaggerates the ego, so that the drinker, while really doing inferior work, thinks he is doing better work than ever..." Tennyson stated

"Cursed be the social wants that sin against the strength of youth!

Cursed be the social lies that warp us from the living truth!"

Alcohol is used less and less for medicinal purposes in the hospitals and by physicians generally. It is found that there are more stable drugs to be used and which are more effective for treating the human ills. Another one of our devoted men of medicine, Dr. Howard Kelly, who was an eminent gynecologist, stated after many years of practice and experience: "My medical experience has taught me that the effect of alcohol is temporary, evanescent, that the drug (for such it is) does no real good, and that a dangerous habit is thus easily engendered which may be most difficult to eradicate, a habit which may utterly ruin the patient body, soul, and spirit, making it far better if she had died at once of her disease while under the doctor's care." Alcohol affects such areas of the body as the brain, the nerves, the muscles, the blood, the stomach, etc. Alcohol is not considered to be a good drug for stomach diseases. Alcohol injures the liver, the largest gland in the body. Cirrhosis of the liver is frequently attributed to the use of alcohol, though there are other factors that will cause cirrhosis of the liver. The liver is a storehouse for many of the vitamins which are drawn upon when needed throughout the body and if this reserve is depleted there may be pathological findings and nutritional diseases. Without question alcoholism is a contributory cause of mental diseases. Further, heavy drinkers have a higher mortality rate than do abstainers. No insurance company would put the alcoholic up as his preferred risk of life expectancy.

Alcohol blunts self-criticism; without the ability to criticize ourselves we often miss some of the finer points. Co-ordination is disturbed. Statistically, it is shown that when a person has 1/10 of 1 per cent of alcohol in the blood that he has breath odor, is careless and fluent; when he has 2/10 of 1 per cent he is flushed, clumsy, and boisterous; when he has 3/10 of 1 per cent he is staggering, incoordinate, and confused; when he has 4/10 of 1 per cent he is unintelligible, helpless, and stuporous and may be unconscious, paralyzed, and his life endangered.

And again quoting from our friend Dr. Howard Kelly, "I have never met another man or woman who indulged in (alcohol freely) who loved the truth or had any clear vision of the value of spiritual things. Its use is perhaps the commonest cause of spiritual blindness."

The church, which is the foe of the liquor traffic, should take an uncompromising stand for what scientifically is taught to be right and wrong. Toward the drinker, Christians should exercise sympathy. The man who is drinking is a man who is sick. He deserves the same degree of kindness in our demeanor toward him as if he had other illnesses. In crusading against alcohol we should learn the truths about alcohol and conduct investigations so as to give the facts and not go on hearsay alone. We should teach the lessons and give the programs in a manner that can be interpreted by everyone. Total abstinence, I feel, is the only safe way to solve the drinking problem. In *Ways*, written by John Oxenham, is stated:

"To every man there openeth a way, and ways, and a way. And the high soul climbs the high way, and the low soul gropes the low, and in between, on the misty flats, the rest drift to and fro. But to every man there openeth a high way, and a low, and every man decideth the way his soul shall go."[10]

When we study the question of alcoholism and see that the many geniuses which have fallen prey to alcoholism and have lost their grip on life and we can hear the resounding of the poem written as follows:

"Once upon a midnight dreary, while I pondered, weak and weary,
Over many a quaint and curious volume of forgotten lore—
While I nodded, nearly napping, suddenly there came a tapping,
As of some one gently rapping, rapping at my chamber door.
"'Tis some visitor, I muttered, "tapping at my chamber door
Only this and nothing more."—
"And the Raven, never flitting, still is sitting, still is sitting
On the pallid bust of Pallas just above my chamber door;
And his eyes have all the seeming of a demon's that is dreaming,
And the lamp-light o'er him streaming throws his shadow on the floor;
And my soul from out that shadow that lies floating on the floor
Shall be lifted—nevermore!"[12]

You at once recognize these lines as having been written by presumably one of the two or three most outstanding geniuses in American poetry, Edgar Allan Poe, and on visiting the Church Home Hospital in Baltimore and going up the stairs and seeing the room where this genius died after having been found in a gutter on the streets of Baltimore some four years after the above poetry was written, reminds us of the pathos that goes with such tragic endings.

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Severe Complications in Late Pregnancy as a Result of Chickenpox

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FOR TWO REASONS I would like to present this case to the Obstetrical and Gynecological Division of the Mississippi State Medical Association. First, to us it was a very rare complication of pregnancy; second, and most important, the patient did survive this terrible ordeal.

Ordinarily we consider chickenpox a mild, innocuous, acute viral disease. The only reference made to the possibility of complications of pregnancy with chickenpox is that occasionally the baby will show some evidence of lesions having been present during the prenatal period, or that the baby will develop a certain amount of immunity as a protection the first few months of life. We were able to find several cases reported in the literature of varicella pneumonia but none of these were complications by pregnancy.

Bullowa and Wishik reported 21 cases of pneumonia among 2,534 hospital cases of chickenpox. In some of these hemolytic streptococci were found and it is thought that probably a secondary infection was responsible in most cases. Quite a few isolated cases were reported in the literature by various men, some reporting one and others as many as two or three cases. Drs. Saslaw, Prior and Wiseman of Columbus, Ohio, reported a series of three cases, with what they termed severe pulmonary manifestations. Two of these cases were in white males and the third in a white female. While the x-rays in their cases were rather similar to the one in the case being reported here, still their response to oxygen, administered by an oxygen tent, was so good I cannot believe that the manifestations were as severe as in this case.

This is a white female 28 years of age, gravida III, with the estimated date of confinement January 17, 1954. This young woman had had a comparatively normal prenatal period until Wednesday, December 30, 1953, when she was seen at home with temperature ranging around 100 and a rash suggestive of chickenpox, with the history that her two children were just recovering from chickenpox. Certainly she didn't appear extremely ill at that time. She was given medication for relief of her temperature and aching and I felt that she would gradually improve since the rash had disappeared. The next day, December 31, 1953, I saw her again at about 6 o'clock in the evening when the rash had become much much more extensive, temperature was then about 101° and a slight increase in respiratory rate. However, on examination I could hear no rales and again I felt that since the rash had become so extensive that certainly her symptoms would soon begin to subside. However, I must admit that I was apprehensive about her and feared that some more serious complications might develop. About twelve hours later, the morning of January 1, 1954, her husband called stating that she had been most uncomfortable since 3 a.m. suffering from extreme shortness of breath. She was brought in to the hospital immediately by ambulance and was found to be very cyanotic, dyspneic and with respiratory rate of about 60. Temperature at that time was about 102°, pulse rate 140. X-ray of her chest revealed the findings as you can see on the plates. At this time coarse moist rales could be heard over both lungs, but more profuse in the right lung. Nasal oxygen was started immediately but failed to give her much relief, and the cyanosis continued. With the nasal catheter still in place an oxygen mask was added with the second tank of oxygen and this seemed to improve the situation for a short period of time. Consultation was requested, and on examination of the x-ray plates the internist could hardly believe this was a result of chickenpox but was more concerned that it might be a tuberculosis. I felt positive that this was not true because she had been too well in the past and it had not been too many months since x-ray examination of her chest was done.

Her condition was so grave that no immediate consideration was given to the condition of the baby. Naturally, the antibiotics were given in large doses; penicillin, streptomycin, intravenous aureomycin, immune globulin and general supportive measures. She showed no improvement. In fact, her condition seemed to grow gradually worse and about 3 p.m. we asked for consultation with an anesthesiologist. Shortly thereafter an intratracheal tube was introduced by the anesthesiologist, which I feel sure was the key procedure in saving this young woman's life. With the intratracheal tube in place and an apparatus of a rub-

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ber bag and water bottle, positive pressure was able to be maintained, and some slight improvement was noted. Still her condition continued very grave. Aspiration of the intratracheal tube, which was necessary at intervals, brought about immediate drop in her blood pressure with imperceptible radial pulse and extreme cyanosis.

We anticipated the fact that it would probably be necessary to do a rapid section in an effort to save the baby. During the morning hours the fetal heart tones had been elicited, but during the afternoon no effort had been made to determine the condition of the baby. The necessity for emptying the uterus occurred suddenly about 5 p.m. During aspiration of the intracheal tube, respiration completely stopped, the blood pressure could not be ascertained and the patient was so cyanose that we felt death was imminent and that this was the time to open the uterus in an effort to save the baby. Again the anesthesiologist was working desperately after aspirating the mucous from the intratracheal tube, and artificial respiration, which could be easily done with the intratracheal tube in place and the pressure bag, was started.

An incision below the navel was made and the baby delivered from the uterus within two minutes. The baby was completely limp and cyanotic. There was never any respiratory effort on the part of the infant, and it is felt that probably the baby had been dead for an hour or more.

Immediately following the contraction of the uterus the patient began to breathe again. In fact, her respiratory rate seemed almost normal for a few minutes. This gave us some trouble in closing the incision since the operation had been done without any anesthesia. Fortunately, however, there was very little bleeding.

Now there may be some criticism for emptying this uterus with a nonviable baby, but I am thoroughly convinced that the relief of the intra-abdominal pressure from this full-term uterus at this exact instant was another key point in the treatment and recovery of this patient. A constant vigil was maintained by the anesthesiologist, the internist and the obstetrician.

Her condition continued about the same, most precarious, until midnight of January 1, 1954, eighteen hours after admission. Since she was still alive, and I felt that there was slight improvement in her pulse, blood pressure and respiration, I had a feeling, or a presumption, that she might survive. Naturally, the family were most apprehensive, and well they should have been, and asked for further consultation. The consultant suggested a tracheotomy. This we had considered but felt at the time that the intratracheal tube was introduced that time was a most important factor and that the intratracheal tube would serve the same purpose as a tracheotomy. We agreed with the consultant that her condition had improved to such an extent at the time that he saw her that a tracheotomy could be done. This was carried out under local anesthesia without difficulty about 28 hours after the patient had been admitted to the hospital. Through the same oxygen apparatus that was attached to the intratracheal tube, positive lung pressure was maintained. It was found that any reduction in this positive pressure permitted the development of pulmonary edema. The intratracheal tube was most satisfactory and served the same purpose as the tracheotomy tube, but I believe that the patient was more comfortable with the tracheotomy tube and it could be cleansed more easily than the intratracheal tube. This was particularly so later on in her illness when she became more alert.

While she continued desperately sick for 48 to 72 hours after the intratracheal tube was inserted, her condition slowly improved with gradual reduction in temperature, a return to normal of her pulse and blood pressure, and with a slow residual of the condition in her chest. As I said, we presented this case for two reasons; first, that it is most unusual. We were unable to contact anyone in these parts who had ever seen this particular complication, and I am sure that it is hoped by all who were concerned with this that they will not have the opportunity to treat another like it, and, second, this girl has made an excellent recovery. It reveals the effectiveness of the combined efforts of the internist, anesthesiologist, surgeon and the obstetrician, without the whole-hearted undivided efforts of each one of whom, the result might not have been obtained.

DISCUSSION

Dr. Gus A. Rush, Jr. (Meridian)—Dr. O'Ferrall has certainly brought to our attention forcefully a most dramatic presentation of the complications of a "childhood" illness. I definitely hope that I am never confronted with a similar situation but if this should happen, I hope the results will be as favorable as his.

Not only has he shown us some excellent therapeutic measures but he has indelibly impressed me with the teamwork and cooperation attained in this case and it behooves all of us to ask freely for consultation as well as consolation at a time like this. I don't recall ever being a consultant or being called into consultation when I have not gained additional knowledge by the discussions. In Meridian several of us meet frequently in "coffee-cup" consultations during the morning and there is hardly a time that one of us doesn't have some puzzling case to bring up for discussion. These informal meetings have been most fruitful and have broken down the barrier so frequently existing between brother practitioners, when foolish pride prevents our acknowledging our mistakes and apprehensions in front of large groups such as staff meetings, medical meetings, etc.

This presentation also serves to bear out one of my pet contentions, that of shielding from the childhood diseases, such as chickenpox, measles (especially German), mumps, etc., and then delaying their having these diseases until later in life when the complications are manifold. I feel that a young girl, if in good health, should be exposed to German measles so that she may get over the disease before she enters adulthood and most especially parenthood.

"DOCTOR HUGH"

Faith, hope, and charity, but the greatest of these is charity. This Bibical truth best expresses the life of Hugh Agnew Gamble, a life spent literally in devotion to the needs of others.

Faith—it was his in abundance, in his abilities, in his clinic, his town, his country, his religion and his God. His way of life was simple and can be expressed in one word, service. He was truly "his brother's keeper," giving freely of his time, his money and his surgical ability to all those who came to him, regardless of race, color or creed; and over the past forty-odd years in Greenville and in the surrounding Delta area the number who came to him for aid was legion. Not one was ever refused.

Hope—Doctor Hugh lived and thought for the future. His optimism for the future of medicine, both locally and on a national scale, was unbounded. He fully expected to live to be a hundred and to continue his practice indefinitely. He was constantly writing medical papers and had definite plans for future medical expansion in Greenville. He himself devised in his lifetime several original surgical techniques of inestimable value and improved techniques of other standard surgical procedures. He lived to see many diseases of mankind completely conquered. It is ironic that one of his chief medical interests throughout his life, and particularly in his later years, the cause and cure of cancer, would in the end be the cause of his death. It is altogether fitting and proper that the American Cancer Society, in grateful recognition for his long and valuable service to this organization, has already established a Hugh Gamble Memorial Fund for indigent cancer patients and so his work goes on.

It is an old axiom that a happy man is one who loves his work. If this be true, Doctor Hugh was the happiest of men. He gloried in his work and put himself completely into his work. That is what sets him apart from the rest of us. It is human and understandable to strive for material gain and for the comforts of life and to take pleasure in inconsequential things. We do not say that this is wrong. We only say that Doctor Hugh had no time for such things. He derived his pleasure from his ability to help others, and he had not time for little things—and he *was* a happy man. He was a born physician a doctor in the true sense of the word, his life dedicated to the care of the sick. Doctor Hugh was an individual who conformed to no set pattern. It was his intense concentration which set him apart, and gave him an inner spark of magnetism that is found in so few. Doctor Hugh always took a definite stand on one side or, the other of any question. He never straddled the fence. Of course, he had his faults, as what human does not, but the *people* loved him and the *people* do not make mistakes.

His life has touched and affected deeply the lives of many others; not only the people whose lives he saved by his surgical skill, not only the people with whom he worked, but all who knew him. On a Delta wide scale the ordinary citizen has reason to love and revere Doctor Hugh Gamble, for in many, many instances Doctor Hugh has helped him. To carry this further, the colored people of the Delta have particular reason to love and revere him. For many years to those sick and without funds he was their salvation. He personally created a hospital for them, which, though not adequate in physical facilities and run without regard to financial gain, was a mecca for the poor. Mainly through his efforts, his money, his time, and his staff, the hospital furnished the highest type surgical and medical treatment. The poorest patient in this hospital received from him the identical care that his richest patient in any other hospital received—with this exception; Doctor Hugh furnished the care and also in many instances paid the hospital bill. This hospital was his pet and he loved it. However, when the opportunity came to get better hospital facilities, his was the strongest voice heard, his was the guiding hand in the efforts made, which resulted in the procurement of the new Washington County General Hospital for white and colored.

But the greatest of these is charity. The life of "Doctor Hugh" is a testimonial to this truth. One cannot write about Doctor Hugh without his great charity to his fellowman cropping up in any paragraph—for it was in every phase of his activities. The Bible says, *By their fruits ye shall know them; and as thinks so he is.* If this be the measure, the stature of Doctor Hugh Agnew Gamble is as the tall pine tree of the forest and the mighty oak. It may be long before we of the Delta will see his like among us again. This man, who, in his youth, slept in a rocking chair instead of a bed because of asthma; this man who was hospitalized and seriously ill from pneumonia fourteen times; this man, who, during his life, was forced to have several serious operations and who finally died a lingering death from cancer, still found time to live a full, happy and useful life. He was possessed of unlimited physical and mental energy, never seeming to tire or to become discouraged whatever odds he faced.

Doctor Hugh now goes to his just reward in heaven, where, we are sure, he will *continue* to be of service, for that is what he knows best. What finer tribute can be paid to the life of a man than to recognize that while on this earth, as did the Master, he gave himself to others.

THE STAFF OF DOCTORS GAMBLE
BROTHERS AND ARCHER CLINIC

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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EDITORIALS

NO SUBSTITUTES

In Mississippi we are thinking of a faculty for our four-year medical school and of a system of training schools for nurses. Research is wonderful. It is imperative when it comes to progress. Theory has its place. But after all the sick patient has to be treated each day.

Dr. Boles of Philadelphia said in the *A.M.A. Journal* a few years ago that "In the last analysis it is the responsibility of the profession to develop individuals who can minister to the spiritual as well as the physical needs of their patient."

"Teachers of clinical medicine should be scientific clinicians rather than clinical scientists."

"Unless men increase in wisdom as much as in knowledge, an increase in knowledge will be an increase in sorrow."

The man who expects to practice medicine and the nurse who expects to do bedside nursing needs to be taught by seeing, observing and helping with the sick patient. The medical student and the nurse can render a fine service while they learn. It develops in them human sympathy, understanding, and because they feel that they are helping to render a service, actually acquire a higher type of training. There is no better way to train a bedside nurse than to train her at the bedside of a sick patient. Likewise the surgeon who can do a good job of operating before his students must be able to carry the patient through in a successful manner and put him back on the job. Both medicine and nursing need to be kept humanized.

The Mayo brothers no doubt were fired to serve when they helped their father save the lives of scores of people who were injured in the storm—this was before they were full-fledged doctors or ready for internships. It is a great mistake to try operate a medical service like a shoe factory or an automobile assembly line.

WHERE TO?

The aged have been dipping into our human economy for some time. A place to sit in the corner and the privilege of being cared for by the family is a type of treatment accepted by generations past. Social security and early retirement next was thought to be the ideal procedure. At sixty to sixty-five years a man was to take the easy chair, so the younger man could have a chance, twiddle his thumbs and be supremely happy until Gabriel blows his horn. Perhaps a home for the aged helped to make adjustments for him. But so far a "happy old age" is a from reality for millions of our population threescore and ten and beyond. By our present day standard of living, money does not hold out long, unless you have just piles of it, which Uncle Sam cafefully denies the average man. Just a few men can now make enough, or save enough, to carry them through to the end in comfort if they retire early. But even if the retired man has the creature comforts, peace of mind and usefulness are major factors in reckoning his happiness.

Every man should be allowed to produce as long as he is able and willing, as long as there has not yet been enough bread produced to feed the hungry mouths of the world. The aged man will be happier if he can be usefully, if moderately, employed. He can keep the tax burden from being so heavy on the young.

Chronological age is a false measure anyway. The medical profession should help guide society in utilizing the knowledge, the wisdom, and experience, and the technical skills of the older worker for his happiness and for the economy of our entire social structure.

POLIO VACCINE TRIAL NEEDS PHYSICIANS' AID

Polio is still one of major problems in medicine. The trial vaccine used this summer is ready for evaluation study. The following editorial from the *Alabama Journal* edited by Dr. Douglass Cannon is timely.

More than 600,000 children have completed three inoculations in the field test of the trial polio vaccine developed by Dr. Jonas E. Salk of the University of Pittsburgh. The emphasis now shifts to the evaluation study under the direction of Dr. Thomas Francis, Jr., University of Michigan School of Public Health. The validity of the evaluation is dependent upon data gathered on poliomyelitis cases in the test groups, *including those children in the first three grades who did not get vaccine*

In addition, data on cases among family members of participating children are an integral part of the study. Since the number of poliomyelitis cases among the test groups may not be large, it is essential that all cases be completely reported. Early diagnosis, prompt reporting and follow-up, and the securing of *necessary epidemiologic information and laboratory specimens* are important factors in the evaluation.

An outline of procedures and copies of necessary forms have been sent to local and state health authorities. It is important that physicians in areas where vaccinations were not given cooperate in the study by notifying local or state health officers of cases occurring among children who participated in the trials and then migrated to another area and children who go to summer camps. Local health officials also need information on participating children who receive injections of gamma globulin.

This phase of the study will depend, to a large degree, on the wholehearted cooperation of practicing physicians.

DR. COX

A familiar face and a beloved doctor will be missing at the Mid-South when it assembles in February. Dr. Allen E. Cox of Helena, Arkansas, passed to his reward on August 16. He was a native of South Carolina. He practised in Tennessee for about ten years and in Helena for more than fifty years. He was a past-president of the Mid-South and a constant attendant at its meetings. Dr. Cox was dedicated to medicine. He was a man of fine balance and kind heart. His personality served well to make up the professional and the friendly atmosphere of the Mid-South Postgraduate Assembly.

On Tuesday, September 14, the Northeast Mississippi Medical Society will meet in Amory, the home of the sage of Monticello in Medicine, the beloved Dr. G. S. Bryan. He has been inactive for a long while, but his spirit still lives in his home town. It is an inspiration to visit his town. It will continue to be. Let us not miss this meeting.

PASS IT ON

Who would have thought just a decade ago that quinine in this country would have been practically passé in our section? For decades it was a household necessity. In some homes and drug stores, in the offices of a few doctors, supplies may still be found. Dr. L. H. McDaniel of Tyronza, Arkansas, discovered quite a supply in his office. His resourceful mind found a place to use it where malaria yet takes its toll in human life. We suggest that doctors and pharmacists ferret out these old bottles of quinine and put them on their way to fields where malaria still takes a staggering toll of human life.

TV MEDICAL ASSEMBLY

The Tennessee Valley Medical Assembly invites doctors from the tri-states to share the excellent program (see ad in back section of journal) announced for their annual assembly September 27-28 at the Read House in Chattanooga, Tenn.

Get your reservation for this fine two-day session.

Don't forget that cancer is the most stubborn enemy of the life of man. Let us fight from every angle.

News and Comment

UROLOGICAL SEMINAR

November 8-11, 1954
Louisiana State University School of Medicine Auditorium
DR. HUGH T. BEACHAM, *Director*

8:00-8:45 Anatomy of lower urinary tract with special emphasis on surgical approach, fascial planes, etc., with normal variations.
9:00-9:45 Fluids and electrolytes in renal disease especially following trauma, shock and transfusion reactions.
10:00-10:45 Pathology of upper urinary tract including most recent diagnostic aids.
11:00-11:45 Dr. Harry Spence.
12:00-1:30 Lunch with round table discussion.
1:30-2:15 Hypertension and its relation to kidney.
2:30-3:15 Dr. Rubin Flocks.
3:30-4:30 Movies of upper urinary tract.
7:00-P.M. Banquet and address by Dr. Reed Nesbit—Jung Hotel.

TUESDAY, NOVEMBER 9

8:00-8:45 Anatomy of lower urinary tract with aids in diagnosis and approach.
9:00-9:45 Physiology of lower urinary tract.
10:00-10:45 Pathology of lower urinary tract.
11:00-11:45 Dr. Rubin Flocks.
12:00-1:30 Lunch with round table discussion.
1:30-2:15 Dr. Reed Nesbit.
2:30-3:15 Dr. Harry Spence.
3:30-4:30 Movies of lower urinary tract.

WEDNESDAY, NOVEMBER 10

8:00-8:45 Anatomy of male reproductive system.
9:00-9:45 Pathology of reproductive system.
10:00-10:45 Dr. Reed Nesbit.
11:00-11:45 Dr. Rubin Flocks.
12:00-1:30 Lunch with round table discussion.
1:30-2:15 Anesthesia in urology—Types with indications and complications.
2:30-3:15 Dr. Harry Spence.
3:30-4:30 Movies of reproductive tract.

THURSDAY, NOVEMBER 11

8:00-8:45 Uremia.
9:00-9:45 Artificial kidney.
10:00-10:45 Dr. Harry Spence.
11:00-11:45 Dr. Tracy Powell.
12:00-1:30 Lunch with round table discussion.
1:30-3:15 Symposium on cancer of lower urinary tract or pediatric urology.
3:30-4:30 Movies on pediatric urology.

SPONSORED BY—Southeastern Section and South Central Sections of American Urological Association.
REGISTRATION FEE—$75.00.
HEADQUARTERS—Jung Hotel.

RUSH PIN TECHNICS

Due to the author's intensive attention to completing the motion picture films of medullary pinning of fractures, and a tardy printer's schedule for the September *Mississippi Doctor*, the fifteenth installment of the RUSH PIN TECHNICS will not appear until October.

PHYSICIANS, SCIENTISTS FROM OVER 40 COUNTRIES TO ATTEND WORLD HEART CONGRESS IN WASHINGTON SEPT. 12-17

Physicians and research scientists from more than forty countries will attend the Second World Congress of Cardiology which will convene in Washington, D.C., September 12 through 17. The medical gathering, which is being combined with the twenty-seventh scientific session of the American Heart Association, will be the largest and most important cardiovascular meeting ever held in the Western hemisphere.

A five-day scientific program in English, French and Spanish, one of the most comprehensive ever presented, will be held at the National Guard Armory from Monday, September 13 through Friday, September 17. Translation facilities will be provided for the program in the Main Auditorium which will feature symposia, panel discussions and special lectures. Among them, Dr. Arthur Guyton of Oxford will present a paper on "Factors Which Determine the Rate of Venous Return to the Heart."

Information on registration for the Congress may be obtained from Doctor L. W. Gorham, Secretary General, c/o American Heart Association, 44 East 23rd Street, New York 10, New York.

U-T FRACTURE COURSE

The University of Tennessee College of Medicine, in co-operation with the John Gaston Hospital, will offer a three-day postgraduate course in fractures and dislocations for mid-South physicians September 15, 16 and 17.

The program will be presented under the direction of Dr. J. S. Speed, chief of the Division of Orthopedic Surgery. The course will include lectures, ward rounds and demonstrations to illustrate certain techniques.

It will be limited to 20 physicians to afford an informal atmosphere and more individualization of instruction.

Further information may be obtained from the University of Tennessee Postgraduate Department, 4 South Dunlap, Memphis, Tennessee.

ACP TO USE NATIONWIDE TV CLOSED CIRCUIT TELECAST

On Thursday evening, September 23, 1954, from 6:00 P.M. to 7:00 P.M., Eastern Daylight Saving Time, the American College of Physicians will utilize television through a national closed circuit over the Columbia Broadcasting System to carry to its members and their colleagues a SYMPOSIUM ON THE MANAGEMENT OF HYPERTENSION. This telecast is made possible through the cooperation and generous support of Wyeth Incorporated of Philadelphia, and will be the first nationwide closed circuit hookup for postgraduate medical education.

This telecast cannot be picked up in the home, but the invited audience must go to the TV receiving station. Twenty-three such receiving stations will be used; in this area Memphis and New Orleans.

ACS CLINICAL FELLOWSHIPS

A limited number of Fellowships offer graduates in medicine opportunities for postgraduate training, emphasizing diagnosis and treatment of cancer.

Fellowships available on and after July 1, 1955 will be awarded for one year and are renewable to and including three years.

Fellowships are awarded to *institutions* only upon application by deans, executive officers or department heads.

Applications for Fellowships for the year 1955-56 must be submitted prior to September 15, 1954.

Further information may be obtained from: American Cancer Society, Professional Education Section, 47 Beaver Street, New York 4, N. Y.

ABSTRACT FROM PEDIATRIC LITERATURE

By HARVEY F. GARRISON, M.D.

CORTICOTROPIN AND CORTISONE IN IDIOPATHIC THROMBOCYTOPENIC PURPURA.—H. N. Robson. M. J. Australia 1:516 - 518 (April 3) 1954.

Robson attempts to assess the value of corticotropin and cortisone in the treatment of thrombocytopenic purpura on the basis of 96 cases collected from the literature and of 7 personally observed cases. Four of the seven patients were treated with corticotropin only; two with corticotropin first and then with cortisone and one only with cortisone. Treatment with corticotropin was continued for from 5 to 12 days, usually with daily doses of 100 mg., which in some cases were reduced to 75 to 50 mg. after a few days or which were replaced by cortisone in daily doses of 100 to 200 mg. The total duration of hormone treatment in these seven cases did not exceed 17 days. Full remissions were obtained in two of the seven patients and so far have continued for one year and seven months, respectively. In the other five cases good or excellent results were obtained; the capillary resistance increased in all cases. The total series of 103 cases is classified in four groups. In the first group of 23 all obtained full remissions and in the second group of 34, all obtained partial remissions. Of the third group of 27 who had not responded to the hormones, 23 were later subjected to splenectomy, which proved effective in 16. Group four comprised 19 patients who had had a relapse after splenectomy. Fourteen of these 19 responded to hormone treatment. Thus, of a total of 103 patients with idiopathic thrombocytopenic purpura, 71 responded to treatment with corticotropin and/or cortisone. There is no evidence that the hormones had an adverse effect. In approximately two out of every three patients who have not been subjected to splenectomy, hormonal therapy may control or diminish the hemorrhagic manifestations. Even if the response is only partial, the risk of bleeding is diminished and natural remission can be awaited or splenectomy undertaken with less sense of urgency.

COMMENT

This is a very interesting article to your abstractor for many reasons, among which is that I have had a number of these cases, both operative and nonoperative. We have had something like 7 or 8 cases operative for splenectomy, with only one death. We have treated many with cortisone with good results, but I would especially advise against prolonging the day of operation if the patient does not respond readily to the cortisone treatment. There is no doubt that cortisone will help.

DEATHS

DR. W. R. BETHEA

Dr. William Roland Bethea, a pioneer in radiology and x-ray techniques, died in Jackson August 24. He was 73.

Dr. Bethea, a graduate of the University of Tennessee, practiced in Hattiesburg and Memphis before moving there in 1938. He was born in Newhebron, Lawrence County, Miss

He did graduate work at Tulane, Johns Hopkins and New Orleans Charity Hospital. He headed the x-ray department at Baptist Hospital in Memphis before moving to Jackson.

A veteran of World War I, Dr. Bethea was active in civic and religious work. He was a diplomate of the American Board of Radiology.

He leaves his wife, the former Miss Agnes Polk of Hattiesburg, and three sons, Dr. W. R. Bethea of Los Angeles, Dr. Ralph C. Bethea of Memphis and David Polk Bethea of Jackson.

DR. ALLEN E. COX

Dr. Allen Ennis Cox, prominent and beloved physician and surgeon at Helena, Ark., the past 50 years, died early yesterday in a Helena Hospital at the age of 82.

Dr. Cox was born in Honea Path, S. C., May 11, 1872, son of Aris and Margaret Meacham Cox. He received his medical education and graduated at Vanderbilt University in the class of 1894. He first started to practice medicine in Gibson County, Tenn., at Milan, where he remained for 10 years. While a country doctor there, he married the late Lucile Cornelia Folk of Brownsville, on May 30, 1901. In 1904 he moved to Helena, where he has been actively engaged as a physician and surgeon for the past half century.

Dr. Cox was noted for his devotion to his patients and friends. His hobbies were hunting and fishing, and he was one of the charter members of Porter Lake Hunting Club near Helena.

Dr. Cox was a Baptist, a member of the Phillips County Medical Society and of the Mid-South Medical Society, of which latter organization he was a past president. He was a member of the American Medical Association for over 50 years. For the past 30 years he was a member of the St. Francis Levee District at West Memphis, as a representative of Phillips County.

He was a member of the Baptist Church.

His son, Allen Cox, Jr., is a Memphis attorney.

His grandchildren are Allen Cox III, a student at the University of Mississippi, Robert Lee Cox, a student at University of Virginia; and Mary Reiney Cox, a student at Miss Hutchison's School, Memphis. He also leaves two sisters, Mrs. Styles Hughes of Richland, S. C. and Mrs. Floyd Willingham of Belton, S. C.; two sisters-in-law, Mrs. Aris Cox of Helena, and Mrs. James Avery Webb of New York City.

DR. V. J. CANIZARO

Dr. Vito J. Canizaro, 47, native of Vicksburg and owner and operator of Canizaro's Clinic at Biloxi since 1946, died July 25 at New Orleans Baptist hospital. He was the brother of James T. Canizaro, Jackson architect.

Dr. Canizaro received his BS degree from Notre Dame University, attended Tulane University Medical School, graduated from Medical School, University of Rome, Italy, and entered the United States Army in 1941, being separated as a Major after serving honorably in the Pacific.

Dr. Canizaro interned at St. Joseph's Infirmary in Baltimore and specialized in surgery at St. Joseph's Hospital in Atlanta, Ga.

He was a member of the Catholic Church of the Nativity, Knights of Columbus, a Fourth Degree Knight, Order of the Alhambra, Holy Name Society. American Medical Society, and Les Pierots, Biloxi carnival organization. He was an honorary deputy sheriff and also a member of the State Medical Association and the Chamber of Commerce.

He is survived by his wife, Gilda Melone Canizzaro, whom he married in Rome Jan. 2, 1936; seven children and four brothers, James T., Jackson, Anthony F., and T. J., both of Monroe, La., and Joseph E. Vicksburg.

DR. LOVETTE GOLDEN

Funeral services were held from the residence July 16 for Dr. Lovette Golden, 69, prominent South Mississippi physician and surgeon, who died at his home in Laurel.

Dr. Golden had been engaged in the practice of medicine since his graduation in 1912 from the University of Tennessee. He first became associated with the Gilchrist Fordney Lumber Company as its medical director. He left the company in 1928 and moved to Laurel where he was associated with the late Dr. Joseph E. Gatlin.

In later years he was associated with his son, Dr. Max Golden.

He was active in the civic, fraternal and religious life of Laurel and was prominently indentified with Laurel's First Methodist Church. He is survived by his widow; one daughter, Mrs. L. H. Ross, Washington, D. C., one son Dr. Max Golden, Laurel.

DR. ROBERT BILES

Dr. Robert E. Giles, 76, died August 7 following an illness of seven months.

Dr. Giles was a resident of Mendenhall for 48 years. He was a Mason and a Shriner.

Surviving are his wife, Mrs. Robert E. Giles, Mendenhall; three daughters, Mrs. Roy Calhoun, Moselle; Mrs. W. B. Causson, Jacksonville, Fla., and Mrs. Robert Mullen, Jackson; two brothers, W. F. Giles, Jeanerette, La., and James Giles, Pinola; one sister, Mrs. Mattie Kolb, Hattiesburg, and eight grandchildren.

Dr. Giles graduated in 1906 from the University of Nashville.

DR. J. D. SWEANY

Dr. Jonathan David Sweany, 75, died at the Greenwood Leflore Hospital June 23 following a long illness. He had practiced medicine at Minter City for 52 years. and was a member of the Fifty-Year Club of the Mississippi State Medical Association.

Services were held at Wilson and Knight Funeral Home with the Reverend J. W. Chatham officiating. Burial was in Odd fellows Cemetery.

Dr. Sweaney was born in Attala County. He was graduated from the Memphis Medical School in 1902 and located in Minter City where he had practiced medicine since that time. He was a member of the Baptist Church.

He married the former Miss Glenn Calhoun of Grenada, who died two years ago.

He is survived by a daughter, Mrs. Frank Leavell of Minter City and three grandchildren.

DR. G. S. BRYAN

Dr. Guy Sanford Bryan, 71 years old, died at the home of his daughter, Mrs. G. R. Forsythe, on Route Two at 3:30 a.m. January 1. He had been ill for about two years.

A resident of Silver City, he had before his retirement engaged in medical practice there since 1919.

Funeral services were held January 2 at 10 a.m. from the Stricklin-King chapel, with interment following in Glenwood Cemetery. The Rev. J. S. Deal, of Start, La., officiated at the funeral rites, assisted by Dr. R. S. Woodson and the Rev. Jack Cranford.

Dr. Bryan was the son of the late Ludwig and Mattie Holaday Bryan, who came to Mississippi from Tennessee. He married the former Mary Frances McGraw, who survives him.

Other survivors include his daughter, Mrs. C. R. Forsythe, a niece, Miss Maggie Brasfield of Aberdeen, and two grandchildren.

Pallbearers were B. S. Reed, N. T. Nichols, M. Howell, H. Allen, J. B. Allen and Jim Johnson, all of Silver City.

A NEW APPROACH

in the Senile

Psychosis Syndrome

1. MILD MEMORY DEFECTS
2. CONFUSION DUE TO ARTERIOSCLEROSIS
3. MENTAL DETERIORATION DUE TO THE AGING PROCESS

SAFE IN AMBULATORY TREATMENT

RECENT CLINICAL STUDIES SHOW THAT A COMBINATION OF TWO USP DRUGS, PENTYLENETETRAZOL (AN ANALEPTIC) AND NICOTINIC ACID (A PERIPHERAL VASODILATOR), GIVES A MARKED RESPONSE IN CASES WITHIN THE SENILE PSYCHOSIS SYNDROME. LEVY* IN 1953 REPORTED BENEFIT IN SENILE PSYCHOSES, INCLUDING MILD MEMORY DEFECTS, CONFUSION, DETERIORATION AND SYMPTOMS OF ABNORMAL BEHAVIOR.

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Cancer of The Stomach*

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Although there has been considerable variation in the incidence of cancers in different parts of the body, some decreasing and some increasing, particularly the lung, ever since the origin of medical records cancer of the stomach has been and still is one of the most frequent cancers of the body. In spite of the fact that cancer of the stomach is not a new disease as is cancer of the lung, the results from its treatment are deplorably bad. According to Lawton et al[1], more than forty thousand persons die annually in the United States from cancer of the stomach. For some reason or other, the incidence of gastric cancer varies with the locality. The highest incidence is encountered in Switzerland where 176 per 100,000 population have gastric cancer. Switzerland is the only place where deaths from gastric cancer exceed uterine and breast cancers in the female. According to the International Vital Statistics for 1949[2], 30.7 per cent of the cancer deaths in males in Switzerland were due to cancer of the stomach. The incidence of cancer of the stomach in the United States is 120 per 100,000 population. In the Charity Hospital in New Orleans[3], gastric carcinoma occurred once in every 265 admissions. The incidence of gastric carcinoma for negroes and white persons in the Charity Hospital series were 1 in 279 for white persons and 1 in 258 for negroes. If the obstetrical patients were excluded, the incidences were 1 in 277 white persons and 1 in 197 negroes. In the Ochsner Clinic[4] the incidences of gastric malignancy among all patients admitted was 1 in every 555. In the Mayo Clinic[5], 1 out of every 200 patients admitted has a gastric cancer. Of the patients admitted to the Hines Hospital[1], which is a Veterans Hospital, 0.6 per cent had cancer of the stomach and 4.7 per cent of all the cancer patients had a gastric malignant lesion.

In spite of the fact that cancer of the stomach is not a new disease, the therapeutic results have been very bad, due almost entirely to delay in diagnosis and institution of definitive curative therapy. It is to be deplored that physicians still treat a patient with gastric manifestations for weeks and even months without considering the possibility of cancer, and this probably more than any other one factor is responsible for the persistence of poor results which have been obtained in the past. Gray and Ward[6] report, in a series of 104 cases of cancer of the stomach which they followed, that there was an average duration of symptoms of 7.8 months before a physician was consulted and an additional delay of 6.4 months on the part of the physician before correct diagnosis was made. In our own series of cases at the Ochsner Clinic, there was an average duration of symptoms of 7.8 months. Although it is emphasized by many that the best results are obtained in those patients who have the longest history, such a philosophy can never be accepted or condoned although it must be admitted that there are patients who have slowly growing lesions which produce symptoms over a long period of time and who still can be cured in spite of the long duration of symptoms. The converse, however, is not true; namely, that the earlier a patient is operated upon the less chance he has of being cured. Undoubtedly there are many individuals who have such rapidly growing tumors that extension beyond the stomach will occur soon after the production of symptoms and the individual may be inoperable, but certainly most of the patients in whom definitive therapy is instituted within a relatively short time after the onset of symptoms can be cured.

The operability incidences in gastric cancer vary considerably from a high of 88.9 per cent reported by Bocharov[7] to a low of 36.2 per cent reported by Ranson[8]. Other reported operability incidences are Winkelbauer[9], 86 per cent; Rhoads[10], 80.8 per cent; Maimon and Palmer[11], 80.9 per cent; Marcus and Lill[12], 52 per cent, and Jemerin and Colp[13], 97.6 per cent. All the above statistics are based upon studies of patients admitted to large institutions. If one considers a metropolitan area as Clark[14] did in Houston, it is found that only 30 per cent were operable. In our own series, 76.6 per cent were operable. The resectability incidence varies also from a high of 54 reported by Winkelbauer[9] to a low of 25 reported by Clark[14]. Other reported figures are: Lawton[1], 30 per cent and Pack[15], 35 per cent. Jemerin and Colp[13] obtained an increase in the resectability rate in two 5 year periods from 41 per cent to 52 per cent. In our own series, 33 per cent were resectable. Clark's study[11] showed that of all the cases in a metropolitan area only 5.7 per cent were resectable. As might be expected from the relatively low operability and resectability incidences, the five-year survival results are not good. If one considers only the cases admitted to the larger institutions rather than a community as did Clark, one finds that the five-year survival rates vary from 1.3 per cent, reported by Delannoy et al[16], to 14 per cent reported by Berkson and his co-workers[5] (Clark[14], 5 per cent; Lawton[1], 5 per cent; State [17], 6.6 per cent, and Welch and Allen[18], 7 per cent). In all the cases in the metropolitan area reported by Clark, the five-year survival rate was 0.8 per cent. In our own series the five-year survival rate is now approximately 10 per cent.

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Because of the bad results which have been obtained in the treatment of gastric cancer, many have been concerned about what can and should be done to improve them. It is obvious that in a condition such as gastric cancer about which so much is known and which has been studied so extensively throughout the years, the therapeutic results should be better than they have been in the past. In more recent years emphasis has been placed upon the necessity of doing wider resection, which is a logical approach to a problem in which surgical removal represents the only possibility of cure. Although the surgical treatment of gastric cancer must be radical, we have been of the opinion that to perform a total gastrectomy in all patients with gastric cancer is not only unnecessary but actually harmful in that the morbidity is greatly increased. However, in the surgical treatment of gastric cancer it is imperative that a wide en bloc excision of the stomach and lymph gland bearing areas should be done. We have previously defined a radical subtotal gastrectomy as one which consists of removal of the first portion of the duodenum, all the lesser curvature of the stomach up to and including a part of the esophagus, all the greater curvature of the stomach up to within 5 or 6 cm. of the cardia, complete en bloc removal of the gastrohepatic, gastrocolic, and greater omentums, careful dissection and removal of the lymph nodes along the lesser curvature, especially those around the celiac axis and the left gastric vessels, the subpyloric nodes, the subhepatic nodes, the gastrolineal nodes, and the paraesophageal nodes. We perform this operation for lesions which are in the distal portion of the stomach and believe that as much can be accomplished by the performance of a radical subtotal gastrectomy as by a total gastrectomy for such lesions. Contrary to what was previously thought, it is necessary to remove all of the first portion of the duodenum because gastric cancers located in the distal part of the stomach can extend beyond the pylorus into the duodenum. Coller and his associates[19] found in microscopic examination of specimens removed for gastric carcinoma that the duodenum was involved in 26.4 per cent. McNeer and his associates[20] found involvement of the duodenal stump in 9.8 per cent. Berne and Freedman[21] found the duodenal stump involved in 7 per cent. Harvey and his co-workers[22] found that more than a fourth of the antral tumors invaded the duodenum. Keuhne[23] found duodenal involvement in 7 of 87 gastric resection specimens. He states that the danger is greatest in the mucinous carcinoma.

In all lesions of the stomach which are large and in those which are located in or which extend proximal to the midportion of the stomach, a total gastrectomy should be done. Total gastrectomies probably should be done more frequently in scirrhous infiltrating carcinomas than in adenocarcinomas or colloid carcinomas, because of the great tendency of scirrhous carcinomas to infiltrate in the lymphatics of the gastric wall. Eker and Efskind[24] studied 80 cases of gastric cancer very carefully, of which 49 were adenocarcinomas, 23 muciparous scirrhous and 8 colloid. They found that the adenocarcinomas have the greatest spread in the mucosa and submucosa and relatively less extension in the deeper layers. On the other hand, the muciparous scirrhous carcinomas have relatively little expansion in the mucosa but considerable in the submucosa and the deeper layers. The colloid carcinomas showed variable degrees of spread.

In a series of 220 cases of primary gastric malignancy observed in the Ochsner Clinic, of which 210, 95.4 per cent, were carcinomas; 154, 70 per cent, were in men; and 66, 30 per cent, in women. The average age for the men was 57.5 years and for the women 55.3 years. There were ten cases of non-epithelial gastric malignant neoplasms as follows: leiomyosarcoma, 5; reticulum cell sarcoma, 3; and one each of lymphosarcoma and Hodgkin's disease. The greatest number of the tumors were large, and the stomach was extensively involved, 36.1 per cent; the antrum was involved in 12.8 per cent; the pylorus in 12.3 per cent; the cardia in 11.7 per cent; the lesser curvature in 9.7 per cent; the body in 7.1 per cent; the greater curvature in 5.2 per cent. In 10 cases, 4.7 per cent, the location was not stated. The pathologist described the lesions as follows: diffuse involvement, 65.8 per cent; ulcerative, 23.8 per cent; polypoid, 10.4 per cent.

Unfortunately, the clinical manifestations of gastric cancer occur so insidiously that early they are likely to be disregarded by the patient and too frequently minimized by the physician. There was an average duration of symptoms in our series of 7.8 months and an average weight loss of 24.9 pounds (11.26 kilograms). Weight loss was the most prominent manifestation in our series, 94.1 per cent. Pain occurred in 83.3 per cent, nausea in 59.5 per cent, epigastric tenderness in 53.8 per cent, anorexia in 52.8 per cent, simple vomiting, 50 per cent, palpable mass, 43.8 per cent, retention vomiting, 20 per cent, melena, 19.5 per cent and dysphagia, 14.2 per cent. It is our belief that the earliest manifestation of gastric cancer is usually anorexia, and we are so convinced of the importance of anorexia that we believe any man past forty who develops anorexia which persists and does not respond to therapy or who has other unexplained and uncorrectable gastric distress must be considered as having gastric cancer until proved otherwise.

DIAGNOSIS

The statement is frequently made that the diagnosis of gastric cancer is relatively easy. This statement is undoubtedly true if sufficient time is allowed to elapse for the gastric neoplasm to become large enough to produce the characteristic manifestations of gastric cancer which even the inexperienced might diagnose. Unfortunately, however, the diagnosis of early gastric cancer is difficult. X-ray examination of the stomach should be performed in all patients suspected of having gastric cancer; but I believe that in many instances when the diagnosis of gastric cancer can be made by x-ray, the lesion is already far advanced and likely inoperable. In our own series a diagnosis of gastric carcinoma was made by the roentgenologist in 96.5 per cent of cases. Although our roentgenologists are good, I believe that it is important to treat gastric cancer when it cannot be diagnosed as such, because when the condition has progressed to the degree that it is clinically diagnosable as gastric cancer, the chance of obtaining a cure is not good. In 104 cases reported by Gray and Ward[24] only 44 per cent were resectable by the time the x-ray was positive. These authors emphasize the importance of epigastric distress as being the initial symptom.

Many attempts have been made to detect cancer of the stomach in asymptomatic persons by mass roentgen survey. St. John et al[25], in 1944, in an x-ray survey of 2,413 persons over the age of forty with no or minimal gastric manifestations found 2 gastric carcinomas and 1 lymphosarcoma. All three cases were resectable and the lesion in each was apparently limited to the stomach. Roach and his co-workers[26] found that by this method only one asymptomatic cancer or its precursor was found in every 476 examinations. Wigh and Swenson[27] found, in 5,341 asymptomatic patients over 40 years who were examined, 322 in which suspicious lesions were present and in which standard x-ray studies were made; 286 were found to be negative. In the remaining, 12 gastric cancers were discovered; 11 were silent, one was inoperable, 2 refused surgery, and in one case a perigastric metastatic node was found. In the other 7 cases the lesion apparently was limited to the stomach. The total cost for the detection of each silent gastric tumor both benign and malignant was $1,068 and for the detection of each malignant lesion of the stomach it was $3,915.

TREATMENT

As mentioned previously there is only one curative treatment of gastric cancer and that is surgical extirpation of the stomach and the regional lymph nodes. Unfortunately, because of the long delay and extent of the lesions, frequently a curative resection cannot be done. Of the 210 cases of gastric cancer included in the present series, 12.8 per cent were so far advanced when first seen that they were considered inoperable and were treated by non-operative palliative measures. Of 183 cases which were considered operable, 15 (7 per cent) refused surgery, 168 were explored. In 46.6 per cent the lesions were found to be non-resectable. In the latter group, 14.2 per cent died within the hospital. In 70 patients (33.7 per cent of the entire group) resection was done and in 46 (65 per cent) it was termed a palliative procedure. Of the 46 patients in whom palliative resection was done, 76 per cent had subtotal gastrectomy of whom 5.7 per cent died within the hospital; 4 (8 per cent) had esophagogastrectomy for extensive disease, 2 of whom died in the hospital; 15.2 per cent had total gastrectomy, 3 of whom died in the hospital. The high mortality rate in the last two groups was due to the extent of the disease and not due to the operative procedure per se. In 24 patients the resection was considered curative because there was neither gross nor microscopic evidence of extension beyond the stomach. Twenty-one (87.5 per cent) were treated by subtotal resection, of whom 2 (9.5 per cent) died in the hospital and 19 (90.5 per cent) left the hospital; 3 (12.5 per cent of the 24) in whom curative resection was done had total resection and all survived. Of the 210 patients with gastric cancer, 43.8 per cent had palliative procedure; 23.8 per cent had exploration and biopsy; in 21 per cent the operation was not warranted or was refused, and in only 24 (11.4 per cent) was a curative resection possible.

LONG TERM SURVIVAL RATES

Obviously the results were not good in those cases in which resection could not be done. These were the most advanced cases. Of these 14.4 per cent were alive at the end of six months, 4.03 per cent were alive at the end of a year, and only one in a group of 109 (0.9 per cent) was alive at the end of two years. No patient lived three years. In the group of cases in which some type of resection was done, 72.8 per cent were alive at the end of six months, 61 per cent at the end of a year, 47.5 per cent at the end of two years, 38.9 per cent at the end of five years. Approximately the same results were obtained in the cases in which a radical subtotal resection was done: 71.4 per cent survived for six months, 58.1 per cent for one year, 46.6 per cent for two years, and 47 per cent for five years. These results indicate that subtotal resection in this series of cases was as effective, in fact slightly more so, than was total gastrectomy. As a matter of fact, the palliative radical subtotal resection also gave satisfactory results in spite of the fact that there was either gross or microscopic extension beyond the stomach: 6 month survival, 68.5 per cent; one year, 47 per cent; two years, 34 per cent; and five years, 20 per cent. As might be anticipated, the best results were obtained in those cases in which there was neither gross nor microscopic evidence of extension beyond the stomach: 85.7 per cent survived five years.

There was considerable variation in the length of survival according to the type of lesion. As might be expected, patients with diffusely infiltrating lesions lived the shortest period of time, 27.7 per cent survived six months; 12 per cent, one year; 5.4 per cent, two years; and only 1.7 per cent, three years. No patients lived as long as four years. Polypoid lesions gave better results: 40 per cent survived six months; 33.3 per cent, two years; and 25 per cent survived five years. Ulcerative lesions, contrary to that obtained in most series, gave the best results: 69.3 per cent survived six months; 54.3 per cent, one year; 45 per cent, two years; and 42.8 per cent, five years.

The survival rate is dependent to a great extent upon the degree of nodal involvement. According to Wangensteen[2] 75 per cent of the people in whom resections for gastric cancer are done have metastasis to the lymph nodes. Ranson[8] reports a 70 per cent nodal involvement in his cases. In our series, 87.5 per cent of those without nodal involvement survived resection for five years and only 20 per cent of those with nodal involvement survived resection for five years. Pack and McNeer[28] obtained a five-year survival rate of 24.2 per cent in those with nodal involvement and a five-year survival rate of 42.8 per cent in those without nodal involvement. Ranson[8] found that the five-year survival rate when the nodes were involved was 16 per cent as compared with 50 per cent when the nodes were not involved. These figures demonstrate the effect of nodal involvement on the survival rate but at the same time demonstrate that cure is possible even in the presence of nodal involvement. There are, however, other factors aside from nodal involvement which determine extension beyond the stomach. Meissner[29] found in careful examination of 100 resected stomachs for carcinoma that there was no nodal involvement in 28 per cent but evidence of blood vessel invasion in 57 per cent and that there was no correlation between the two. Diffuse lymphatic invasion without nodal involvement is also possible.

To recapitulate, in the entire series exploration was done in 76.6 per cent, resection in 33.3 per cent, 29 per cent survived resection, and 9.9 per cent were alive at the end of five years.

This study shows that in those cases in which the lesion is limited to the stomach the outlook is good and, conversely, when the lesion has extended beyond the stomach the prognosis is much worse. It is obvious, therefore, that a greater percentage of cases must be operated upon while the lesion is still limited to the stomach. In what way can this be accomplished? It is imperative that gastric cancer should be considered more frequently by the profession and that an attempt would be made either to confirm or to exclude such a diagnosis. Any man past forty who has an unexplained digestive disorder which does not respond to therapy must be considered as having gastric cancer until proved otherwise. As mentioned previously, x-ray examination is valuable in making a diagnosis of gastric cancer in the late stages, but unfortunately it is of little value in the diagnosis of early lesions. Although I would be the last to decry the value of x-ray diagnosis, it must be emphasized that a negative x-ray does not exclude gastric carcinoma. For a number of years I have emphasized to undergraduate students that if the results are to be improved, it is necessary to treat gastric cancer when we cannot diagnose it. Although this seems paradoxical, it means that it is imperative that lesions which clinically are not gastric cancer must be treated in order to increase the salvage rate in this disease. There are certain lesions which are definitely pre-cancerous. Gastric polypi, for instance, are pre-cancerous, and it is our belief that all gastric polypi should be removed because of the danger that they may subsequently undergo malignant change or because they may already have undergone malignant change although the condition is not diagnosable preoperatively.

There is a good deal of controversy at the present time concerning the best method of treatment of gastric ulcer and whether gastric ulcers ever undergo malignant change or not. Although thirty years ago it was commonly accepted that the chronic calloused gastric ulcer which persisted over a number of years was a pre-cancerous lesion, this is not as generally accepted at the present time. Gordet[30] reports that only 7 cases of cancer developed in peptic ulcers during a ten-year period in the Gastroenterological Department of the Salpetriere Hospital in Paris. Beattie and Moroney[31], based upon a hypothetical formula, believe that the danger of malignant change in a gastric ulcer is minimal. On the other hand, Marshall[32] found in a series of 411 gastric ulcers that 15.8 per cent were malignant. Ekstroem[33] found in a series of 274 cases of gastric cancer which he studied of which 138 were subjected to radical operation 16 (11.5 per cent) were considered to have originated in a benign ulcer. In 11 cases, there was previous x-ray evidence of ulcer at the site of the cancer. In 15 per cent of the cases there was a great probability of previous existence of an ulcer, and in 8 per cent unquestioned finding of a previous ulcer in those with cancer. Wilson and McCarty[34], in 1909, in a series of 153 cases of proved gastric carcinoma, found that 71 per cent presented evidence of developing on the basis of pre-existing ulcer. Stout[35] states that 13.4 per cent of 82 cases in which gastrectomy was done for cancer there was evidence that the cancer had developed at the margin of a pre-existing ulcer. According to Swynnerton and Truelove[36] in 7 per cent of their cases the lesion arose in a previous gastric ulcer. It is my belief that a chronic calloused ulcer can undergo malignant change just as a chronic ulcer of the skin can undergo malignant change. It is logical to assume that in an epithelial surface which is so susceptible to malignant change as is the gastric mucosa that the persistence of a defect, an ulcer, even the scar, might ultimately develop into a cancer.

Even if one is not willing to admit that a chronic calloused ulcer of the stomach can undergo malignant change, it must be accepted that in many instances it is impossible to differentiate between benign and malignant ulcers by roentgenologic examination, by gastroscopic examination, by palpation during the operation or even by visualization when the stomach has been removed. It is only after the microscopic section has been obtained that one can in reality say with certainty whether the lesion is malignant or not. According to Allen[37] before 1939, 14 per cent of his patients who were operated upon for benign ulcer had cancer of the stomach. In more recent years the incidence of error in diagnosis has been about 10 per cent. He states that in cases of gastrectomy in which the preoperative diagnosis is gastric ulcer, the chance of cure is twice as good as in the case in which the preoperative diagnosis is cancer. Engel[38] states that the roentgenologist was able to differentiate between benign and malignant ulcers in 34 per cent of his cases, and Lampert[39], in a series of 550 cases of ulcer of the stomach that were diagnosed as benign at the Mayo Clinic, found 73 (13 per cent) were malignant. Of the 411 cases of gastric ulcer reported by Marshall[32], 15.8 per cent were malignant. The physician who undertakes the conservative treatment of a gastric ulcer assumes a real responsibility. In a series of 414 cases of apparently benign gastric ulcers treated conservatively and followed for five years at the Mayo Clinic by Cain et al[40], 10.4 per cent had or developed cancer. Of 140 patients operated upon, cancer was found in 34 (24.3 per cent) and was inoperable in 9. Of the 414 cases, 226 were alive after five years of conservative treatment. In this group 11 (5 per cent) developed gastric cancer. Because of the impossibility of distinguishing between benign and malignant ulcers of the stomach and also because of the possibility, in fact, I believe probability, that many chronic ulcers of the stomach can undergo malignant change, it is our belief that all gastric ulcers should be resected. Obviously, if this philosophy is accepted, a large number of patients with benign gastric ulcers will be subjected to an operative procedure. Although this might seem unnecessary on the part of some individuals because of the probability that the ulcer would heal under adequate conservative therapy, I cannot agree that it is unnecessary because it is the only way that one can be sure the lesion is not malignant. In addition, the surgical treatment of gastric ulcer is a very satisfactory one. I would not want to leave the impression that we are of the belief that all peptic ulcers should be operated upon. On the contrary, we are of the opinion that duodenal ulcer, unless there is some definite indication for surgical intervention, should be treated conservatively. On the other hand, because of the possibility that ulcers of the stomach may be malignant or may become malignant, we believe all of them should be removed.

Unfortunately, the cytologic examination of the gastric secretion has not yielded the positive results that we had hoped. As yet, not enough experience has been obtained by the use of the abrasive balloon technic suggested by Panico, Papanicalaou and Cooper[11], to determine whether it will prove valuable or not.

Although in most patients with carcinoma of the stomach some lesions of the stomach can be demonstrated, such as an ulcer, polypi, or even chronic gastritis, there are cases in which at the present time nothing demonstrable is present; and it is our belief that even these individuals should be given the advantage of an abdominal exploration. I refer particularly to men past forty who previously were prefectly well, who were not bothered by any digestive disturbances, but who develop anorexia which persists and does not respond to therapy. It may or may not be associated with an epigastric discomfort. The anorexia is severe and persistent enough to make the patient lose weight. In such an individual, even in absence of demonstrable findings on x-ray or gastroscopy and even in the absence of achlorhydria, a diagnosis of gastric carcinoma is justified and abdominal exploration is indicated. In four such patients we have found a small lesion in the stomach, so small that it was not visible either on gastroscopy or by x-ray. In each case the lesion was apparently limited to the stomach and we believe that a radical subtotal resection has resulted in a cure. There must be considerable variation in the reaction of patients to malignant lesions of the stomach, because, in contrast to our four patients in whom there were symptoms but in whom no lesion could be demonstrated, there are cases occurring asymptomatically in which the lesion is detected by mass roentgenography. As mentioned previously, 12 patients were discovered among a series of 5,341 examined by Wigh and Swenson[27]. One, unfortunately, was inoperable, two refused surgery, one had one perigastric metastatic node, but in the other seven the lesion was apparently limited to the stomach.

Cancer of the stomach continues to be a disease associated with a high mortality rate. Although it has been suggested that an improvement in therapy can be obtained by employing more radical surgical procedures, such as total gastrectomy in all cases, it is our belief that unfortunately the problem is not quite as simple as that. If the results in the treatment of cancer of the stomach are to be improved, it is necessary that diagnoses should be made and therapy instituted at a time while the lesion is still limited to the stomach and before it has metastasized. This is possible at the present time only by treating conditions which are clinically not cancer of the stomach, because unfortunately at the present time we cannot diagnose with assurance cancer of the stomach in its early stages. Until some diagnostic procedure which will permit early diagnosis becomes available, it is necessary to consider gastric cancer in all men past forty who have unexplained and persistent gastric complaints. All gastric ulcers, gastric polypi, and certain cases of chronic gastritis should be operated upon and even in individuals with symptoms in whom no lesion can be demonstrated, an abdominal exploration is indicated.

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Remember the SMA meeting in St. Louis, November 9-11.

Management of Common Types of Deafness*

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THE PROBLEM of deafness is universal, affecting both sexes and all ages. Approximately 10 per cent of the population is handicapped by impaired hearing. Tremendous strides have been made during the past fifteen years in our understanding of the pathology of deafness and the management of deaf persons. The stimulus for this interest in the problem has come from the decrease in incidence of suppurative diseases of the ear, the development of the fenestration operation, the improvement in hearing aids and audiometers, and the educational programs for the hard of hearing.

The management of deafness constitutes a large part of the practice of otolaryngology. The diagnosis, medical and surgical treatment when indicated, and advice and guidance to the hard of hearing and deaf will be the subject of this discussion. For convenience these will be considered under the broad headings of conduction and perceptive deafness.

CONDUCTION DEAFNESS

CONGENITAL atresia of the external auditory canal may be successfully treated by a two-stage fenestration operation[1] if function of the inner ear is normal. Acquired atresia, as from osteoma of the external canal, produces conduction deafness which is correctable by endaural removal of the osteoma.

Conduction deafness is twice as common in children as perceptive deafness. It is usually due to obstruction of the eustachian tube by an enlarged adenoid mass. Treatment consists in careful complete excision of the adenoids followed by bilateral, well-placed myringotomy and aspiration of the mucoid material. Not infrequently, repeated myringotomies and aspiration of exudate in the middle ear and mastoid may be necessary in these children. Administration of roentgen ray or radium to the nasopharynx three to four weeks following adenoidectomy may be necessary if tubal patency has not been established.

With the frequent, often indiscriminate use of chemotherapeutic and antibiotic drugs in acute otitis media, many abscesses that would have been incised, or that have ruptured spontaneously and subsided, become subacute and the middle ear remains full of exudate, which if not removed by myringotomy, becomes organized causing irreversible "adhesive" deafness, flares up again and again, or extends into the mastoid as "masked mastoiditis." The slightest bulging of the tympanic membrane demands immediate myringotomy. In cholesteatosis of the attic and mastoid with healthy tympanic membrane and cavity modified radical mastoidectomy will preserve and often improve hearing.

Central perforations may often be closed if the ear remains dry for a period of four weeks. We use trichloracetic acid to freshen the margins of the perforation and place a splint of thin paper or cellophane tape over the perforation. Several treatments at intervals of two weeks may be necessary, depending on the size of the perforation. A gain in hearing by closure of an existing perforation can be predicted by closing the perforation with a small cotton pledget moistened with glycerine and repeating the audiogram.

The incidence of secretory otitis media is definitely increasing. There seem to be several different types. Fluid often accumulates in one or both ears following an acute upper respiratory infection. This responds nicely to inflation and withdrawal of the fluid once or twice. If the fluid is thin, it may be withdrawn with a needle aspirator (Gottschalk). If thick, wide myringotomy with use of mechanical suction is better. Persistent cases of middle ear effusion usually result from allergic tubal occlusion or hyperplastic nasopharyngeal lymphoidal tissue. Chronic sinusitis may be found. Unilateral secretory otitis may result from nasopharyngeal malignant lesions. Careful examination of the nasopharynx is indicated in such cases. We have seen persistent secretory otitis media resulting from roentgenotherapy for a pituitary adenoma and from androgenic therapy in carcinoma of the breast.

Otosclerosis, the commonest cause of deafness developing in young adults, affects 0.5 per cent of the population. Fixation of the stapes with resultant deafness occurs only in one out of nine persons with pathologic otosclerosis[2], so that although it is considered a hereditary disease, a negative family history of deafness is often the case. Otosclerosis is twice as common in the female, and pregnancy is accompanied by an increase in hearing loss in 50 per cent of cases. Otosclerotic deafness is not considered an indication for therapeutic abortion. Not infrequently, otosclerosis is associated with perceptive deafness the cause of which is not known. Fortunately, this perceptive deafness is more apt to occur late in the course of otosclerosis so that for a long time the patient is a candidate for the fenestration operation. The incidence of postoperative closure of the fenestra is less than 5 per cent following the fenestration operation. By careful selection of patients with little or no loss of perception and fixed stapes, hearing in the operated ear can be restored permanently to a threshold satisfactory for understanding normal conversation in 80 per cent of patients. We believe revision operations are not worthwhile. Many otosclerotic patients have had numerous unnecessary, useless forms of therapy, including eustachian tube inflation, submucous resection, adenoidectomy and tonsillectomy. Not only does such therapy fail to improve hearing but it often causes the patients to feel that nothing can be done for them.

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PERCEPTIVE DEAFNESS

Perceptive deafness encompasses those disorders of the inner ear and the eighth cranial nerve and its central pathways which raise the threshold of hearing. Unlike conduction deafness, the threshold of feeling remains the same so that the patient has a narrowed range of useful hearing. Perceptive deafness is often associated with loss of speech discriminatory ability as well as the raised threshold for loudness, so that the use of amplification is not as satisfactory as in conduction deafness.

Congenital perceptive deafness was first classified by Myklebust[3] into endogenous and exogenous. In the former the deafness develops as a result of a gene defect. In the latter it is due to maternal rubella or rarely other illnesses in the mother during the eighth to tenth week of pregnancy, or it may be due to kernicterus.

Toxic deafness may be a complication of infectious diseases such as meningitis, diphtheria, mumps or measles. Fortunately deafness from the latter three is often unilateral, and the incidence of meningitic deafness has decreased considerably with the availability of the newer drugs. Such drugs as quinine, streptomycin and dihydrostreptomycin may also cause deafness. Dihydrostreptomycin, which has no therapeutic superiority over streptomycin, was developed in the hope that it would not be toxic to the labyrinth. However, not only has it proved toxic to the labyrinth but it is even more toxic to the cochlea. It may cause sudden, severe deafness without warning tinnitus. Often the hearing loss progresses after administration of the drug has been discontinued. Plain streptomycin always affects the labyrinth first, and cochlear damage is preceded by tinnitus. The toxic dose of either drug is usually larger than that used clinically but there are exceptions, particularly older individuals who are abnormally susceptible to the effect of either drug. I have seen serious bilateral deafness develop after a total dosage of only 5 to 6 gm. and have seen complete destruction of the labyrinth from a total dosage of 6 to 8 gm. over a period of two weeks. When these drugs must be used, such as in patients with tuberculosis, streptomycin is the drug of choice. If given in interrupted doses it is just as effective and its toxic effects on the eighth cranial nerve, nuclei and tracts are largely prevented.

The effect of a sudden blast on the hearing may be traumatic rupture of the tympanic membrane and petechial hemorrhages in the cochlea resulting in permanent perceptive deafness. A basal skull fracture, depending upon direction, produces perceptive or conduction deafness. More common and more important is the effect of sustained high intensity noise on the inner ear. The conservation of hearing in industry has become a universal problem and the otologist should be prepared to advise employers about this problem properly, place workers who are more susceptible to acoustic trauma, fit ear guards and detect malingerers. Many companies are requiring pre-employment and periodic audiograms for employees working in a high noise level. Tinnitus that subsides following removal of the noise usually precedes permanent deafness from acoustic trauma. The audiogram in early deafness from acoustic trauma shows a characteristic loss at 4,000 cps.

Endolymphatic hydrops with or without vertigo is a common cause of perceptive deafness in early and middle adult life. It differs from other types of perceptive deafness in that it is usually unilateral, is recurrent, and in the early stages may be reversible. The etiology is a subject of considerable disagreement among many authorities. Hilger[4], Williams[5], Passe[6] and others explain many syndromes of the inner ear, including Meniere's disease, on the basis of vascular dysfunction, usually spasm of the smaller branches of the labyrinthine artery. This dysfunction is manifested clinically by one or more of the following symptoms: tinnitus, deafness, vertigo, nausea and vomiting, distortion of sound (diplacusis) and a sense of pressure in the ear. This concept certainly accounts for the various syndromes encountered; moreover, therapy directed toward correcting the vascular dysfunction often yields dramatic results. Immediate treatment of the acute attack is directed toward relieving the spasm in the affected labyrinthine vessels by use of vasodilating agents, such as nicotine acid or histamine, and of blocking agents, such as procaine intravenously, atrophine, banthine, dramamine or benadryl. Long-term therapy is directed toward preventing attacks by avoiding precipitating factors, such as the stress of fatigue, acute infectious disease and emotional strain, preventing retention of excess fluid by restricting the sodium and fluid intake and by use of diruetic drugs, and continued use of vasodilating and blocking drugs. By careful management often the hearing loss in Meniere's disease may be kept at a minimum. By the early use of vasodilating and blocking drugs in sudden perceptive deafness often hearing may be restored to its previous level. In any case of sudden perceptive deafness with or without vertigo it is well to institute early, vigorous treatment with vasodilating and blocking drugs, regardless of the age of the patient, in an effort to reestablish the circulation to the affected areas of the inner ear.

Tumors of the eighth nerve and cerebellopontine angle characteristically cause severe perceptive deafness and do not show recruitment. Rarely such deafness is reversible by removal of the tumor[7].

Presbycusis is the name given to the gradually progressive perceptive deafness that develops in all people with increasing years. The loss is generally greater for the high tones so that high pitched hard consonant sounds are missed first. The patient with presbycusis hears but does not understand conversation in the presence of background noises (he usually hears well in quiet surroundings). The age of onset and progress of presbycusis is a matter of heredity but the loss is often increased by prolonged acoustic trauma.

With the exception of endolymphatic hydrops and other inner ear vascular syndromes there is no known treatment that benefits perceptive deafness. Such agents as vitamin A and vitamin B complex have been of no value in our hands. Instruction in speech reading and auditory training are of immeasurable value, a careful explanation of the patient's problem with his hearing loss and strong reassurance that he will never be completely deaf are a great help to the nerve deafened. A well fitted hearing aid is of great value when the loss for high frequencies is not too greatly in excess of the loss for low frequencies.

Psychogenic deafness, which is a fixation neurosis, is a psychiatric problem. A number of excellent tests designed to expose the malingerer may be performed with any standard audiometer.

Finally, the counselling of parents of deaf children deserves special mention. First of all, the differential diagnosis between the aphasic child, the feeble-minded child, the emotionally disturbed child and the deaf child must be made. Correspondence courses* for training deaf children are of considerable aid to parents. Also, helpful literature** is available on request. A hearing aid should be fitted early if residual hearing is demonstrable. If possible, the child should be kept in school with normal children and have special counselling[8]. The use of auditory training units is of great value. With diligent educational effort by the mother the nerve deafened child can develop understandable speech, and learn speech reading so that he can take his rightful place in our society.

CONCLUSIONS

1. Tremendous strides have been made in recent years in our understanding of the pathology of deafness and the management of deaf persons.
2. Early diagnosis and education is of great value in the management of the congenitally deafened.
3. Intelligent management of adenoid and middle ear disease in children will preserve their hearing.
4. The fenestration operation is successful in 80 per cent of properly selected cases of otosclerosis.
5. Caution should be exercised in the use of streptomycin and dihydrostreptomycin because of their toxic effect on the auditory and vestibular apparatus.
6. Early and vigorous vasodilating and blocking therapy should be instituted in any case of sudden perceptive deafness.

FOOTNOTES

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Indications and Advantages of Vaginal Hysterectomy

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In the earliest days of gynecology, death regularly followed laparotomy. Recovery from vaginal self-removal of the uterus, however, had been observed so that several of the early, braver gynecologists began their attempts to relieve those suffering women by planned vaginal hysterectomy. There was intense opposition to their efforts, but they persisted in spite of this. Soon almost all types of serious pelvic disease, ranging from extensive prolapse, uterine and cervical cancer, acute and chronic adnexal inflammation, to large ovarian tumors were being approached surgically through the vaginal canal. Through these early and subsequent eras, experienced vaginal surgeons have stressed the increased safety and decreased pain which the patient experiences when diagnostic procedures are carried out, or pelvic pathology is removed through the vagina rather than through laparotomy incisions. Most obstetricians agree that the fetus may be delivered vaginally with less risk and discomfort to the mother than by Caesarean section or hysterectomy. During the last twenty years the number of vaginal hysterectomies has increased all over the world. The operation is generally easy and the results are excellent. Even very old women, who are poor risks, can have the benefit of vaginal hysterectomy without any serious consequences. In desperate cases, when there is great need for removal of the uterus, a vaginal hysterectomy can be performed in five to ten minutes by the clamp method according to the Price-Kennedy procedure. Today, all gynecologists accept the fact that there is a definite place for vaginal hysterectomy, although there is considerable difference in attitude toward it. In the Middle West, particularly in Chicago, where Heaney was a pioneer in vaginal hysterectomy, this operation is extremely popular and many hysterectomies are being performed by the vaginal route.

In deciding between vaginal or abdominal hysterectomy, a number of factors must be considered. First, is the abdominal operation going to be more difficult than the vaginal because of obesity or other reasons, or is the vaginal hysterectomy going to be more difficult because of previous extensive abdominal surgery with adhesions, very large tumors, or other reasons. We realize that the indications for vaginal hysterectomy will vary considerably according to individual authors. Some gynecologists prefer the vaginal approach for removal of the uterus for almost any condition in which hysterectomy is indicated. These men feel that the criteria for surgery from below are a moderately mobile uterus, and, in most cases, some relaxation of the vaginal-supporting structures. We feel that there are definite indications in which vaginal hysterectomy is the procedure of choice and that neither the abdominal nor the vaginal approach should be attempted in all cases. For the purpose of this discussion we have received some sixty-five cases of vaginal hysterectomy which were performed either by myself or by my associate, Dr. Glen T. Pearson, from July 1949 through March 1954. During this same period of time we have performed one hundred and sixty-five hysterectomies by the abdominal route, as shown in Table I.

TABLE I, HYSTERECTOMY, 1949 THROUGH MARCH 1954

Type—			*Number*	*Mortality*
Abdominal hysterectomy			165	0
Supravaginal		9		0
White	4			0
Negro	5			0
Total		156		0
White	116			0
Negro	40			0
Vaginal hysterectomy			65	0
White	61			0
Negro	4			0

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We feel that our situation as regards hospital facilities, nursing personnel, and trained assistants is comparable to that of most other medical centers of our state. With this in mind our conclusions concerning indications are given as follows:

1. Prolapse of the uterus.

   One of the most common indications for vaginal hysterectomy is prolapse of the uterus. Certainly, in patients over forty years of age this operation is almost the only safe and surgically sound method of treating this condition. We do not want to give the impression that all types of prolapse are to be treated by vaginal hysterectomy. In younger women the Fothergill or Manchester operation is used by us if the child-bearing function is desired to be preserved. This operation gives excellent results and does not end the obstetrical career of the younger female. It has also largely replaced the interposition operation of Watkins. The interposition operation, in addition to the other disadvantages, may not completely relieve the patient's symptoms as evidenced by one case in our series in which the interposition operation had previously been performed with subsequent development of stress incontinence, and for which a vaginal hysterectomy became mandatory in order to give the patient symptomatic relief. Complete prolapse of the uterus, which most often occurs in the sixth decade of life, has long been the prime indication for vaginal hysterectomy, and which is by far the most satisfactory method of relieving this severe degree of uterine prolapse.

2. Need for Vaginal Repair and Hysterectomy

   When a colpoperineoplasty is done, one should nearly always try to remove the uterus vaginally when a hysterectomy is necessary unless the vaginal approach is contraindicated according to the criteria which should always be considered before electing this procedure. The advantages of this method will be apparent at a later point in the discussion.

3. Need for Hysterectomy in Elderly and Poor Risk Patients.

   Because of the safety of vaginal hysterectomy and the small number of postoperative complications, hysterectomy, when indicated in the elderly and poor risk patients, is best accomplished by the vaginal approach if this route is not otherwise contraindicated.

4. Obesity.

   Because of technical difficulties and increased blood loss which accompanies abdominal surgery in the very obese patient, we feel that hysterectomy in this group is best accomplished by the vaginal route unless otherwise contraindicated.

No discussion of indications for any particular procedure is complete unless contraindications are also stated. Our contraindications are as follows:

CONTRAINDICATIONS

1. Previous pelvic surgery with questionable mobility of the uterus or adnexa.
2. Known history of pelvic inflammatory disease.
3. Definite evidence of adnexal lesions or fixation.
4. Pelvic tumors larger than a fetal head or interligamentous to any extent.
5. Lower abdominal pain or tenderness not explained by pelvic examination.
6. Desire of patient for appendectomy or exploratory laparotomy.
7. Suspicion of pelvic malignancy.

The reasons for most of these contraindications are obvious, and as a general rule they should always be observed. However, when operating upon a patient who has had previous pelvic surgery our feeling has been that if it was necessary to perform vaginal repair as well as to remove the uterus, an attempt should be made to do hysterectomy from below. If difficulty is encountered only a minimum of time is lost by subsequently going above to complete the hysterectomy. In our study it was noted that eighteen patients had previously had appendectomy; three patients had previously had laparotomy with suspension; one patient had laparotomy without suspension; five of the patients had previously had vaginal plastic surgery. Some authors report that large ovarian cysts may be evacuated and satisfactorily removed by the vaginal approach. However, in general we feel that our rule considering pelvic tumors is the safest for most occasions. The desire for appendectomy or exploratory laparotomy may be a contraindication to the vaginal hysterectomy as was noted by one of us in performing for the gynecological condition, but insisted that an exploratory be performed at the completion of this procedure.

In order to substantiate our conclusions for the various advantages of vaginal hysterectomy, we have studied the sixty-five cases performed by us with reference to postoperative complications, operative shock, postoperative stay in the hospital, operative time, morbidity, and postoperative pain. Our findings will be given along with other advantages as found in the literature. Table II shows a division of the types of procedures performed in the cases which have been studied.

TABLE II, HYSTERECTOMY, 1949 THROUGH MARCH 1954

Type of Procedure		*No. of Cases*
Vaginal hysterectomy with posterior colpoperineoplasty		28 (41.3%)
Vaginal hysterectomy without colpoperineoplasty		1 (1.5%)
Vaginal hysterectomy with anterior and posterior colpoperineoplasty		35 (53.8%)
Vaginal hysterectomy with anterior colpoperineoplasty		1 (1.5%)
Vaginal hysterectomy with colpoperineoplasty and adnexal removal		5
Vaginal hysterectomy, colpoperineoplasty, and additional vaginal surgery		3
Third degree perineal laceration	1	
Bartholin gland cyst	2	
Vaginal hysterectomy, anterior and posterior colpoperineoplasty and hemorrhoidectomy		1

ADVANTAGES OF VAGINAL HYSTERECTOMY

1. Fewer Postoperative Complications.

   Fewer complications such as pneumonia or atelectasis with partial or complete pulmonary collapse, which follows abdominal hysterectomy fairly often, are rarely seen in vaginal hysterectomy. Complications are otherwise no greater than are found when doing a vaginal repair along, or in conjunction with, abdominal hysterectomy. Our postoperative complications are listed in Table III.

TABLE III, HYSTERECTOMY, 1949 THROUGH MARCH 1954

Postoperative Complications—		*No. of Cases*
1. Postoperative shock (Pulse pressure less than 30 and/or pulse greater than 110.)		4
2. Urinary retention		21 (32.3%)
With anterior colpoperineoplasty	17	
Without anterior colpoperineoplasty	4	
3. Urinary infection (Microscopic pyuria)		18 (27.7%)
With anterior colpoperineoplasty	15	
Without anterior colpoperineoplasty	3	
4. Postoperative bleeding from perineorrhaphy (10th p.o. day)		1
5. Postoperative bleeding from vaginal vault (12th p.o. day)		1
6. Massive hemoperitoneum from bleeding vaginal cuff (3 hours p. o.)		1
7. Hematoma of vaginal cuff (required no treatment)		1
8. Influenza		1
9. Morbidity		23
Urinary infection	7	
Influenza	1	
Tuberculosis salpingitis	1	
10. Mortality		0

It will be noted that urinary complications are the most common complication as found by us. However, it will be observed by further analysis that this complication occurred chiefly in those cases in which an anterior colpoperineoplasty had been performed. Further analysis of the cases of postoperative bleeding which we encountered, shows that the vaginal approach cannot directly be blamed for these complications. One case in which a massive hemoperitoneum followed surgery, occurred some three hours postoperative in a patient in which there had been a deep laceration of the cervix into the lower portion of the broad ligament. There had been extensive scarring producing increased tension so that the ligature did not hold.

Morbidity as determined by the standard classification of the patient showing an elevation of temperature above 100.4 degrees on any two successive days, following the day of surgery, or a rise of the temperature to a level of 102 degrees on any day following the day of surgery is given as 35.4 per cent. This compares favorably with the morbidity as reported by various authors of both abdominal and vaginal hysterectomies.

2. Less Operative and Postoperative Shock.

   In our study we used as a standard, to determine shock, a drop in the pulse pressure to a level of less than thirty, or a rise in the pulse rate to greater than one hundred and ten. We found only four cases, all of which were extremely mild, and which responded readily to stimulants and intravenous fluid, which occurred in our series of sixty-five cases.

3. Mortality Rate is Almost Nil.

   Weaver and Johnson in 1951 found the death rate in 13,939 vaginal hysterectomies to be 0.31 per cent, and in 884 vaginal hysterectomies to be 0.11 per cent. With the advent of improved surgical technique, freer use of blood, early ambulation, the availability of antibiotics, mortality rate should become even lower than these figures in the years to come. We have had no deaths in the one hundred and sixty-five cases of abdominal hysterectomy and sixty-five cases of vaginal hysterectomy.

4. Anesthesia is Less Profound Than in Abdominal Hysterectomy.

   Anesthesia does not need to be as profound as in abdominal hysterectomy in which general anesthesia is employed. Intravenous, caudal, or low spinal anesthesia is quite adequate for vaginal surgery. Even local anesthesia can be used if the operator so desires. When regional or local anesthesia is used the trachea remains dry, and there are no plugs of mucous to block the bronchi during the first few days of convalescence.

5. Smoother Postoperative Course.

The postoperative course following vaginal hysterectomy is distinctly smoother than it is in abdominal hysterectomy. Patients who have undergone vaginal hysterectomy have less gas pains, ileus, postoperative vomiting, phlebitis, pulmonary infarction, and intestinal adhesions. Early ambulation is, undoubtedly, useful in eliminating some of these troublesome complications, and the fact that the peritoneal cavity is entered only at its lowest level, makes it readily understandable why postoperative adhesions and intestinal obstruction, as well as milder cases of intestinal complications such as gas pains, ileus, and postoperative vomiting, have a much lower incidence in the postoperative period than is found with abdominal surgery.

6. Less Postoperative Pain.

In our study we made accurate counts of the number of hypodermics which the patient received during the first seventy-two hours following surgery. Our findings are recorded in Table IV.

It is difficult to make a comparison between vaginal hysterectomy and abdominal hysterectomy for a study of this sort because frequently the abdominal hysterectomy is done for more extensive pelvic pathology. However, we did find eight cases subjected to total abdominal hysterectomy in conjunction with a colpoperineoplasty, in which prolapse of the uterus was given as an indication for the hysterectomy. It is realized that the threshold of pain varies considerably from one individual to another, and we also realize that nursing care may or may not influence a study of this sort. We thought it of particular interest that of the four colored patients who had vaginal hysterectomy, two had only one postoperative hypodermic for pain during the first seventy-two hours after surgery.

7. Shorter Operative Time.

This factor varies, to a degree, on the ability of the individual surgeon, the availability of trained assistants, adequate instruments, and the technique of the individual operator, but all things being equal, the vaginal approach does prove to be a time-saver. Speed of surgery should not be obtained at the expense of good surgical technique. Neither is it good surgical judgment to subject a patient to a prolonged surgical procedure if the same, or improved results, can be secured by using another approach. Our comparative findings are listed in Table V.

Again, as a comparison, we have used eight cases of abdominal hysterectomy in which uterine prolapse was given as an indication for the hysterectomy.

TABLE IV, HYSTERECTOMY, 1949 THROUGH MARCH 1954

Type Procedure—	*No. Cases*	*No. hypos for pain*	*Range*
Vaginal hysterectomy with posterior colpoperineoplasty	27	8.2	3 to 15
Vaginal hysterectomy with anterior and posterior colpoperineoplasty	30	8.8	1* to 16
Vaginal hysterectomy with additional pelvic or rectal surgery	8	6.25	2* to 13
Total abdominal hysterectomy with colpoperineoplasty	8	10.05	5 to 13

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*Two colored patients had only one; and one colored patient had only two hypodermics.

TABLE V, HYSTERECTOMY, 1949 THROUGH MARCH 1954

Extent of Surgery—	*No. Cases*	*Av. op. time*	*Range*
Vaginal hysterectomy with posterior colpoperineoplasty	27	1'17"	32" to 2'00"
Vaginal hysterectomy with anterior and posterior colpoperineoplasty	30	1'41"	1'15" to 2'46"
Vaginal hysterectomy with additional pelvic or rectal surgery	8	1'48"	1'15" to 2'30"
All types	65	1'32"	32" to 2'46"
Total abdominal hysterectomy with colpoperineoplasty	8	2'13"	1'30" to 2'55"

TABLE VI, HYSTERECTOMY, 1949 THROUGH MARCH 1954

Type Procedure—	*No. Cases*	*Avg. Length of Stay*	*Range*
Vaginal hysterectomy with posterior colpoperineoplasty	27	8.2 days	6 to 14 days
Vaginal hysterectomy with anterior and posterior colpoperineoplasty	30	9.7 days	6 to 15 days
Vaginal hysterectomy with additional pelvic or rectal surgery	8	12 days	8 to 24*days
Total abdominal hysterectomy with colpoperineoplasty	8	11.1 days	9 to 14 days

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*One case of unsuspected tuberculous salpingitis.

8. Affords Opportunity for Final Pelvic Evaluation and Diagnostic D and C.

   All vaginal surgery should be preceded by a thorough pelvic examination under anesthesia; all of us agree that frequently this is the only way in which thorough evaluation of the pelvis can be obtained. During this procedure findings may be made that would alter the decision of the surgeon to attempt vaginal hysterectomy, or make it more advisable to perform laparotomy in preference to vaginal hysterectomy. Diagnostic D and C should be a routine part of every vaginal procedure, and certainly if an unsuspected malignancy should be found, the course of therapy would be greatly altered.

9. Shorter Postoperative Stay and Recovery.

   This advantage has been reported quite extensively in the literature and again it is a factor which can be evaluated only for an individual operator or surgical group. The individual preference of the surgeon in the use of early ambulation and other advantages of modern surgery has reduced the postoperative stay for almost all types of surgery. The results of our study are listed in Table VI.

It was noted that when extensive vaginal repair was performed that the hospital stay was slightly prolonged, and it was also found that urinary complications were the chief factor which prolonged postoperative hospital stay. Additional pelvic procedures did not appreciably alter the postoperative stay although our statistics would seem to indicate the contrary. However, this is explained by the fact that in one case unsuspected tuberculous salpingitis was found at the time of surgery for complete prolapse of the uterus and vagina in a colored patient. It was necessary for the patient to remain in the hospital twenty-four days after surgery in order that she might obtain treatment for the acid-fast infection.

SUMMARY AND CONCLUSIONS

1. A discussion of the indications and advantages of vaginal hysterectomy has been given. The vaginal approach for hysterectomy has definite indications and contraindications which should be carefully considered before choosing this method in any given case.
2. Vaginal hysterectomy has distinct advantages over abdominal hysterectomy in properly selected cases. These advantages have been discussed.
3. A review of sixty-five cases of vaginal hysterectomy performed in our practice has been made, and our findings are given to substantiate our conclusions.

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DISCUSSION

Dr. Walter Simmons (Jackson)—I was happy to hear that Dr. O'Neal's indications for vaginal hysterectomy were about the same as mine, his contraindications about the same, and his complications, too, about the same. It is chiefly the complications about which I wish to speak now.

As you have just heard, by far the most frequent complications involve the bladder—especially urinary retention. This is 4 to 5 times as frequent in vaginal hysterectomies in which anterior colporrhaphy (or elevation of the bladder) is done at the time of removal of the uterus. One immediately notices the similarity to a simple anterior vaginal repair. Complication-wise, it seems to make very little difference whether or not the uterus is removed. Apparently it is the sudden change in anatomical position of the bladder and urethra which accounts for the mal-function. Here, I want to mention a complication which has proved quite embarrassing to me. The essayist did not mention it in his paper so I infer he was free of it. In two cases I had "stress incontinence" to become definitely worse following vaginal hysterectomy and anterior repair. Because of this I have become more reluctant to deal with the mild cystourethrocele which is asymptomatic or one in which the symptoms are minimal. This doesn't mean one should not do a hysterectomy if it is clearly indicated or should the abdominal approach be used if the vaginal operation is preferable. It means just leave the bladder alone if in doubt. I was glad to see Dr. O'Neal had no postoperative fistulae in this series and I have been lucky enough, too, not to have this well-known complication. Inadvertently getting in the bladder isn't the serious complication it might first appear. Getting in and not recognizing it is almost certain to leave fistulae. This obvious fact applies to the ureter as well as the bladder and in doing an abdominal as well as vaginal hysterectomy. If the bladder is opened a careful layer by layer closure almost always gives good results.

The operator should do a vaginal hysterectomy knowing that *sometime* he will encounter complications which, had he known of their presence beforehand, would have contraindicated the vaginal operation. He should feel no reproach at his inability to proceed but, unruffled, complete the operation from above. Such circumstances are very similar to the application of obstetrical forceps when traction should cause the baby's head to descend but it doesn't. In both circumstances a few minutes of calm deliberation will clearly point to an abdominal incision as the wiser course.

Of late complications, perhaps the most distressing is secondary prolapse of the vagina. Very likely this is seen more often after vaginal than abdominal hysterectomy. However, this is not due to the vaginal operation *per se* but rather to the nature of the indications for this operation. Most of these patients show poor pelvic support before surgery as, indeed, this is the chief indication for vaginal hysterectomy rather than abdominal. We would expect, then, to see secondary prolapse more frequent in women who showed appreciable lack of support to begin with. Technically, a small step to take to prevent secondary prolapse is to go as high as practical on the uterosacral ligaments in plicating them. When the posterior vaginal cuff is anchored to this point it draws the vagina deep into the hollow of the sacrum. Of course, adequate repair of a relaxed perineum serves to prevent subsequent vaginal prolapse, too.

Dr. I. C. Knox, Jr. (Vicksburg)—In view of the title of Dr. O'Neal's paper, I was somewhat surprised by the request to discuss *contraindications* and *disadvantages* of vaginal hysterectomy. Dr. O'Neal has ably and aptly summed up the main contraindications in his excellent paper, which makes my task lighter. Before adding one or two other contraindications, I would like to list some of the main disadvantages to this method of hysterectomy, since these have not been previously named.

These disadvantages include: 1) complete exploration and visualization impossible; 2) adnexal surgery difficult or impossible; 3) suspension or replacement of pelvic and abdominal organs (*i.e.* ovaries) inaccurate; 4) operation less easily accomplished in nulliparae, or in similar anatomical situations; 5) percentage of urinary retention and urinary tract infection higher; 6) field of visibility limited to smaller area, and thus accidents—such as with large vessels—not handled as well.

One contraindication to vaginal hysterectomy not mentioned previously is that of technical difficulty. I have in mind, as one example, the high, rigidly-supported cervix, with a very narrow or stenotic vagina. Secondly, there is always the contraindication based on relative situation, for where there exists any need or deficiency great enough to make a procedure hazardous or impractical, there also must exist a parallel contraindication. Examples of this are poor lighting, inadequate help, and lack of proper equipment.

In the final analysis, indications or contraindications must be based on the surgeon's ability, the patient's condition, and the existing physical or material situation. In any given instance, the particular operative method that best suits *that* surgeon and *that* patient is the preferable procedure for *that individual case.* I am convinced that, in the hands of a careful and technically skilled surgeon, there is very little or no difference in the mortality or morbidity in the two methods.

Although I will admit personal preference to the vaginal approach when indicated, in our clinic we do more abdominal than vaginal hysterectomies. Reasons for this are mainly two-fold: First, in our hospital and clinic, we do a good amount of surgery for cancer, including pelvic node dissection, and this, to us, contraindicates vaginal hysterectomy. Secondly, a large number of cases that come to surgery exhibit evidences of other pelvic or abdominal disease. For instance, many present complaints of lower abdominal pain, which pain is either not explained by pelvic changes, or is vague or undiagnosed by pelvic examination. In these and similar instances, we feel that abdominal exploration presents a better opportunity for finding and correcting such difficulties.

We are all aware of the often-expressed conclusion that there is no basic conflict in choosing between these two methods of hysterectomy, and that, since each has its own place in the surgical repertoire, there is no real competition between them. To me, the outstanding virtue of such a conclusion is the hopefully-expressed idealism contained therein. Certainly no one believes that the indications for each of these methods are so clear cut as to be standardized. I humbly disagree that there is no competition between the two procedures. If there were not, there would be no articles written comparing results, mortality, morbidity, etc., for where absolute indication exists, comparison is useless and unnecessary.

In spite of my comments on this subject, I am actually very favorably inclined toward the use of vaginal hysterectomy where indicated. We might as well settle to its uses and abuses, and evaluate its true place in gynecologic surgery.

Practical Uses of Newer Therapeutic Agents in Surgery

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NEW THERAPEUTIC agents are constantly becoming available to the practicing surgeon who rarely has the time or the facilities to review the literature pertaining to the clinical use of these newer drugs.

This review is intended to give a brief discussion of some newer therapeutic agents which are of particular interest and importance to the surgeon. A concise summary of the essential features of the various drugs presented is given.

Newer Antibiotics in Surgery

ACHROMYCIN

This antibiotic is similar to aureomycin and terramycin, both chemically and in regard to the bacterial spectrum against which it is effective. However, it has been shown to have the advantage of producing less gastro-intestinal disturbances such as nausea, vomiting, and diarrhea when given orally than either of the latter drugs. Intravenous preparations of the drug are available and seem less apt to cause sclerosis of the superficial veins.

ILOTYCIN

Ilotycin or erythromycin is most effective against the gram positive organisms and has been shown to be especially useful against penicillin resistant organisms. The drug has also been shown to be the agent of choice in staphylococcic ileocolitis which not too infrequently is a complication of the oral use of the broad spectrum antibiotics. Oral and intravenous preparations are available[2].

NEOMYCIN

This antibiotic was isolated in 1949. Today, the most important use of the drug in the field of surgery is in the preparation of the gastro-intestinal tract prior to surgery. The drug may be administered orally, and since it is not absorbed when employed in this manner, none of the toxic effects noted when it is given parenterally are observed. If emergency gastro-intestinal surgery is to be performed the intestine, if the need arises, can be effectively sterilized in a few minutes by the injection of an isotonic saline solution of neomycin into the intestinal lumen at the time of operation[3].

Newer Advances in Parenteral Nutrition

ALCOHOL

The use of intravenous alcohol preparations is becoming more widespread, and when it is administered properly there are few untoward effects. The sedative action and the increased caloric intake (7 cal./gram of absolute alcohol) are the advantages derived from its use. It is usually given in combination with other solutions in a 5 to 7 per cent concentration. Not more than two liters of such a solution should be given in a single day due to the relatively slow metabolism of alcohol[4].

PROTEIN HYDROLYSATES

Loss of nitrogen in the urine as a result of protein catabolism almost always accompanies major surgery, and in patients who are unable to take oral nutrition the replacement of this lost nitrogen becomes a disturbing problem, especially if the period of inability to eat is prolonged. Therefore, the introduction of parenteral solutions of protein hydrolysate was an important step in the field of surgical nutrition. These solutions are usually administered intravenously, but if no superficial veins are available, they can be given by hypodermoclysis employing hyaluronidase at the site of injection. These preparations supply nitrogen in the form of amino acids and can offset to a large degree the nitrogen loss during protracted malnutrition following or complicating certain surgical procedures. Alcohol and glucose in various concentrations can be obtained and administered with the protein hydrolysate, but it is to be remembered that these solutions should be given by vein only, since subcutaneous injection is extremely irritating and may cause superficial necrosis of the overlying tissues. With the addition of glucose and alcohol to the protein hydrolysate solution more calories can be given in less fluid volume, and it is feasible by employing these various combinations to give a patient 2300 to 2500 calories daily intravenously[5].

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A New Vasopressor Drug

NOR-EPINEPHRINE

Nor-epinephrine, (levophed, arterenol) was first synthesized in 1904 and is similar to epinephrine in chemical structure. It differs pharmacologically in that the anxiety, restlessness, and apprehension associated with the administration of epinephrine are rarely encountered when it is given. Even though the drug has been available for some time its clinical use is only now being defined. The principle action of the drug is to produce a marked vasoconstriction of the arteries, capillaries, and veins and thereby increase peripheral resistance; a rise in the blood pressure usually follows. The dosage usually employed is 4 cc. of a 1:1000 solution added to 1000 cc. of isotonic saline or 5 per cent glucose in distilled water. This infusion is started intravenously at 10 to 15 drops per minute, and then the rate is increased 5 drops every three minutes until the desired blood pressure is obtained. The infusion is then allowed to run at a rate which will maintain this blood pressure[6].

Since the introduction of this new vasopressor many reports, most of which are favorable, have appeared in the literature [7 8 9 10]. Miller and his associates[11] have treated 40 shock episodes in 32 patients with nor-epinephrine and in 33 of these episodes they obtained a good pressor response, in 5 cases they obtained an increase in the blood pressure but not out of the shock range, and in 2 cases they obtained no response. One half of their patients were suffering from shock thought to be primarily cardiogenic, and the other half were suffering from non-cardiogenic shock. These latter cases included ruptured ectopic pregnancies, ruptures of the aorta, severe gastro-intestinal hemorrhages, a case of empyema of the gallbladder and a case of anaphylactic shock. They believe that as an adjunct in the treatment, including hemorrhagic shock, nor-epinephrine or arterenol is a useful agent, and that it is specifically indicated in the cases where the shock is thought to be due to a loss of peripheral vasomotor tone.

Some of the potential dangers associated with the use of the drug are: 1) a concealed hemorrhage may be missed, and therefore the etiology of the shock should be known or be determined early during the course of treatment to avoid this hazard, 2) cerebral hemorrhage may occur from too great or too sudden a rise in blood pressure and, 3) inadvertent infiltration of the drug into the subcutaneous tissues may occur producing an intense local vasospasm with subsequent necrosis of the overlying tissue. The skin of the hands and feet is especially prone to be so affected, and for this reason it is best not to use veins of the hand or foot. Careful observation while the drug is being given should minimize this hazard [7 9 10].

A New Drug For the Prevention and Treatment of Ventricular Arrhythmias During Surgery and New Drugs Employed for the Production of Controlled Hypotension During Surgery

PROCAINE AMIDE

Procaine amide, unlike procaine hydrochloride, is not hydrolyzed rapidly by plasma enzymes nor is it as potent a central stimulant as is the latter drug [12 13]. Therefore, it is a more effective and a safer agent for intravenous use. It is absorbed completely and rapidly from the gastro-intestinal tract and has the same pharmacologic action as when given parenterally[14]. Since it is much less likely to cause untoward effects when given orally, this is the route most commonly employed for administration. In emergency situations, however, parenteral administration may be necessary.

In surgery the agent has been employed primarily to prevent and treat cardiac arrhythmias arising during thoracic operations. However, it has also been used in other types of surgery. Ficarra[15] advocates the prophylactic use of one to two grams of the drug orally one to two hours before surgery in elderly patients and during the operation advocates the use of one gram intravenously, supplemented with 0.5 gram at half-hour intervals if the dose used is not thought to be sufficient. His rationale is that the drug prevents cardiac irregularities and diminishes irritability of the heart and thereby reduces the percentage of cardiac complications during surgery.

Other authorities are less enthusiastic about this use of the drug and advocate caution when the drug is administered intravenously to the point of having continuous electrocardiograms run during the period of intravenous administration. The electrocardiogram enables the surgeon to detect adverse changes in the heart before they can be clinically diagnosed[16]. Certainly the drug should be used cautiously when administered parenterally to patients with known coronary artery disease because the drug may cause a decrease in the blood pressure, and any action which diminishes or slows coronary blood flow might well precipitate thrombosis[17]. Another danger associated with the intravenous use of the agent is cardiac standstill. Epstein[18] reported three cases which were thought to be due directly to the use of intravenous procaine amide, and Weingarten and his associates[15] reported another case in which the same agent was incriminated.

HEXAMETHONIUM BROMIDE

There are three methods available to the surgeon for producing hypotension during surgery in order to minimize blood loss and thus render the surgery easier and more adequately performed. These methods are: 1) arteriotomy, 2) high spinal anesthesia, and 3) ganglionic blockade. The last method would appear to be the one most acceptable from a physiologic standpoint, and is the only one which has been employed widely[19].

Hexamethonium bromide, a ganglionic blocking agent with potent vasodepressor effects, has been utilized in surgery to produce controlled hypotension during operations of various types, Boyan[20] has employed the drug in 114 patients who were undergoing radical pelvic or abdominal surgery. He states that so long as the capillary pressure at the afferent end of arteriole is 32 mm. of mercury or above the tissue does not suffer for nutrition, all other factors being equal. Furthermore, there are decided differences between this type of hypotension and the hypotension associated with acute hemorrhage. These differences are: 1) in the latter the blood volume is reduced, 2) the peripheral resistance is increased, 3) the skin is pale, cool and moist, and may be cyanotic, 4) the pulse is rapid, and 5) the venous pressure is reduced. These are not the characteristics of the hypotension produced by the hypotensive ganglionic blocking agents.

In the above investigator's series of cases, which include 16 men and 98 women, 10 to 100 milligrams of intravenous hexamethonium was employed after the patient was anesthetized with a combination of pentothal and ether. A fall in the systolic blood pressure, depending on individual variation, to 65 to 70 mm. of mercury usually resulted, and the blood pressure was maintained at this level with additional drug when it was needed. The patient was placed in the head down position to keep blood from pooling in the extremities. There were no untoward effects associated with the use of the drug in this manner and the surgery was easier, more exact, and blood loss was definitely reduced. Large vessels of course still have to be ligated. Before the abdomen was closed the pressure was returned to the control level employing neosynephrine and elevation of the legs. No untoward postoperative effect developed, and no derangement in renal, cerebral, or other phases of postoperative physiology were observed. Since the myocardium is working against less peripheral resistance, the diminished coronary blood flow is not harmful.

It is important to have the patient closely observed after surgery to be certain that the hypotension, if still present, is due to the drug and not to a concealed hemorrhage. This investigator concludes that the use of a hypotensive agent has its place in selected radical surgery for cancer.

Other workers have used this drug with good results[21].

ARFONAD

The ganglionic blocking agent arfonad (R02-2222) is a shorter acting preparation than hexamethonium bromide. Therefore, the blood pressure can be more precisely controlled when it is employed, and the blood pressure can be restored more quickly after the operative procedure is finished. Nicholson *et al*[22] have used this drug in 25 patients and in all but three of these patients have removed brain tumors. In two of their patients, however, radical mastectomy was performed, and the blood loss was remarkably reduced. No untoward effects were attributed to the use of this agent to produce hypotension during these procedures.

Neither drug should be employed for the purpose of producing "surgical" hypotension in patients with cardiovascular disease, renal dysfunction, or those with a history of cerebrovascular accidents, or other signs of arteriosclerosis.

A New Opiate Antagonist

N-ALLYL-NORMORPHINE

In 1943 Unna[23] first demonstrated that N-allyl normorphine was a specific antagonist to morphine intoxication in animals. The next year Hart and McCarley[24] confirmed these results. However, it is only in recent years that the drug has been used extensively. Eckenhoff and his associates[25] demonstrated that when respiration is depressed by morphine or demerol, 5 to 10 mgms. of N-allyl-normorphine given intravenously caused an increase in the respiratory rate and a 200 to 300 per cent increase in respiratory minute volume. Second doses were less effective and third doses had no effect. They also noted that if the patient was hypotensive due to narcosis the drug elevated the blood pressure to the control level in a good many instances. These same findings have been observed by other workers[26, 27].

The standard dosage to be administered has not been determined, but it is recommended by most authorities to give 5 to 10 mgms. to see what the effects are before more drug is administered. In no case should more than 40 mgms. be given since this amount has been shown to cause further depression[28].

The agent is not effective against anoxia per se, nor is it effective against cyclopropane or ether anesthesia. In addition to morphine and demerol, the drug has been shown to be the treatment of choice for heroin intoxication, methadone poisoning, and for the overdosage of dilaudid, pantopon, racemorphan (Dromoran) hydrobromide, and dihydromorphine[29]. A recent report states that it is effective against barbiturate poisoning[30] although an earlier report stated that this was not the case[21].

New Enzymes of Value in Surgical Therapeutics

Hyaluronidase

Hyaluronidase has the property of being able to depolymerize the mucopolysaccharide hyaluronic acid and thus temporarily break down the barriers of the intercellular substrate, allowing for a freer flow of fluid in the interstitial and extravascular spaces. The drug is available as the powdered extract of bull testis and is standardized as TRU (turbidity-reducing units) or as VRU (viscosity-reducing units). One TRU equals 3.3 VRU. Vials are available containing 150 and 1500 TRU, and the amount used depends on the condition for which the drug is to be employed. The uses of the drug in general surgery are many, and only the ones which have proved to be of definite value will be discussed in this review.

Soft tissue swellings due to hematoma produced by trauma are remarkably affected by the injection of a 1 per cent procaine solution and varying amounts of hyaluronidase. There are many reports citing cases where the use of the substance in such a manner has caused the hematoma to be dispersed in 24 to 48 hours with the concomitant subsidence of the associated pain, swelling, tenderness, and limitation of motion. The edema associated with supracondylar fractures and with wringer injuries of the extremities have also been successfully and more readily treated by adding hyaluronidase to the regimen. Hemarthrosis and hematomata, frequent complications of hemophilia, are best treated by the injection of hyaluronidase into the affected area. Heretofore, the treatment of these complications of this disease has been a distressing problem, and the introduction of this new form of therapy is promising. Blood and lyophilized plasma in conjunction with other agents which are known to affect favorably the clotting mechanism in this condition are indicated, particularly if active hemorrhage is still occurring.

Other fluid collections can be dispersed by the use of this agent and among these are those associated with the inadvertent infiltration of intravenous fluids, those associated with prolonged heparin usage, and perhaps the lymphedema of the arm following radical mastectomy or radiation to the axilla. The use of hyaluronidase in administering clyses is common, but it may not be appreciated that the same injection site can be used for 24 to 36 hours without additional hyaluronidase, since the dermal barrier is not reestablished before this interval of time. The protein hydrolysates and plasma have been given effectively by hypodermoclysis without untoward effects following the local use of hyaluronidase. The use of the agent is not recommended in areas of infection unless appropriate antibiotics are administered in conjunction with the drug.

In states of shock or in any case where the peripheral circulation is inadequate, such as in conjestive heart failure, or in patients with low serum protein levels, absorption of fluids given subcutaneously is impaired. For this reason this route of administration of large amounts of fluid should not be used in such cases[31, 32].

Trypsin

This is a pure crystalline enzyme derived from the mammalian pancreas and is available in the dry powder form. Miller and his associates[33] report that it is useful as an adjunct in the treatment of infected wounds. Others have employed the drug in the treatment of indolent infected ulcers with good results[34]. The drug is effective only at a pH of 5 to 8, and therefore nitrazine paper should be applied to the wound or ulcer to be treated to determine its pH. The pH can then be adjusted to the optimum level by employing Sorenson's phosphate buffer solution. The drug is relatively unstable in solution and loses its fibrin and protein digesting property. Thus it should always be freshly prepared before use. Normal tissue is not affected by the drug which can be used in the powder form, in wet compresses, or in a base which is water-soluble. This agent does not take the place of incision and drainage of closed space abscesses. Peripheral vascular ulcers are not healed by the use of the drug, although the debridement accomplished by the enzyme may improve the blood supply to the part sufficiently to cause fresh and healthy granulation tissue to form.

Reiser *et al*[35] employed the drug in the therapy of empyema of the pleural cavity with good results and agree with the above investigators that the drug is a valuable adjunct in the treatment of infected wounds. These investigators noted a fair number of allergic reactions to the drug and advocate that benadryl be given to allay this adverse side effect.

A New Vitamin K Preparation Specific for the Treatment of Hypoprothrombinemia Produced by the Coumarins

VITAMIN K_1 EMULSION

Not infrequently it is necessary to perform emergency surgery on patients who have been taking dicoumarol or other related coumarin substances as therapy for medical conditions such as coronary thrombosis, thrombophlebitis, or pulmonary embolism. A real surgical hazard pertaining to the inability of the blood to clot properly is present, and until recently there has been no agent which could rapidly reverse this type of hypoprothrombinemia. With the introduction of an emulsion of vitamin K which is rapid in its action this difficulty has been overcome[36].

Vitamin K was first synthesized in 1939 but it was only in 1950 that Shoshkes and his coworkers[37] prepared an emulsion which experimentally and clinically was effective. The drug is marketed commercially by Merck under the trade name, Mephyton. This is a synthetic preparation in oil of a 5 per cent aqueous emulsion of vitamin K_1 in 1 per cent lecithin for intravenous administration. It is photosensitive and should be protected from the light. The emulsion is usually stable, but if oil droplets appear on the ampule it should be discarded.

The dosage usually employed in emergency situations is 50 to 100 mgms., but not more than 0.2 cc. of the emulsion which corresponds to 10 mgms. of the vitamin K_1 should be given per minute. A good method for administration of the drug is to withdraw 5 to 7 cc. of blood into a syringe containing the desired dosage and then detach the syringe from the needle leaving the needle in place. The mixture is then thoroughly mixed by agitating the syringe and is reinjected as directed above. The emulsion may also be diluted in 1000 cc. of isonic saline or 5 per cent glucose in distilled water and then administered intravenously. Response has been noted in 15 minutes, and hemorrhage usually ceases in 2 to 4 hours. The prothrombin level will return to normal in a period of eight to fourteen hours. Additional drug may have to be given although in the usual case one dose is often enough. The only untoward effects associated with the use of the drug reported thus far are epigastric pain of a vague nature, flushing, sweating, tingling of the face, and a sense of constriction in the chest[38].

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TRACING THE WORD "HOSPITAL"

The English word *hospital* was derived from the French word *hopital* which had its genesis in the Latin noun *hospes* (adjective *hospitalis*), meaning host or guest. The words *hotel, hospice,* and *hospital* stem from the same source, meaning a dwelling-place. The hotel is a dwelling place for general purposes, the hospice, for the permanent poor and infirm, and the hospital, for the sick and hurt. The term Hotel Dieu (House of God), designating the chief hospital of the town, was used extensively on the Continent and was transferred early to the new world.

The word *infirmary,* which meant, originally, a room set apart in a monastery for the reception of members not able to work because of the infirmities of age, is used now interchangeably with *hospital.*

(Courtesy American College of Hospital Administrators)

SOME CONSIDERATIONS IN REGARD TO THE PROBLEM OF TUBERCULOSIS CONTROL INCLUDING A

Policy in Regard to Antibiotic and Chemotherapy of Tuberculosis in the Home

THURMAN T. JUSTICE, JR., M.D.
Gulfport, Miss.

WE HAVE BEEN asked to consider a program of drug therapy to be used in the home treatment of patients with tuberculosis[1]. In order to do this it may be well that brief consideration be given to the whole problem of tuberculosis control, or to the measures for control now in effect.

The source or reservoir of the human type of tubercle bacillus is man. Transmission occurs through direct contact or contact with infected material from a person with tuberculosis. The eventual aim of any tuberculosis control program is, or should be, eradication of the disease. Preservation of tuberculosis in a population for the purpose of maintaining acquired resistance would not seem to be indicated[2],[3]. Here we might consider the accomplishment of veterinary medicine in controlling bovine tuberculosis. As you know, the program, begun in 1917, has been successful. The incidence of tuberculosis among cattle has decreased approximately 98.6 per cent[2]. Human infection with the bovine type of bacillus now constitutes a very minute fraction of all tuberculous infections.

The history of leprosy and the effectiveness of measures for control might also be considered as an example of accomplishment by an adequate control program.

It is well to remember that each person with a positive tuberculin test is a potential clinical case of tuberculosis. There are some experts in this field who now believe that chemotherapy should be given anyone whose tuberculin reaction has recently converted from negative to positive even though a roentgenogram of the chest is "negative".[4]

Case finding is obviously a very important part of tuberculosis control. Each of you is aware of reasons for deficiency in the adequacy of case finding by individual physicians alone. Mass x-ray surveys are also deficient in that, as in case finding by individual physicians, all persons are not reached. Also detracting from this method is the element of human error as well as the location of the lesion.

Education of the public is a necessity. Through it sufficient cooperation is obtained to give value to x-ray surveys, the enforcement of isolation procedures is made possible and easier, there is more public support for sanatoria, and confidence and courage to face long-term isolation and/or therapy are increased. More attention to this aspect of a control program would undoubtedly result in fewer irregular discharges from sanatoria and greater willingness on the part of the non-hospitalized, infectious case to observe the precautions necessary to prevent the spread of infection.

Sanatorium care for much greater numbers of infectious cases of tuberculosis, though greatly to be desired, seems unlikely in the near future. Continued effort to improve and enlarge existing facilities should receive our support.

Principally because of the lack of adequate sanatorium facilities the treatment of tuberculosis in the home by private physicians occupies an important place in a control program. The advent of antibiotic and chemotherapeutic agents effective against the tubercle bacillus has served to increase its importance and has also increased the responsibility of the physician. The Riban(*) treatment of cases awaiting admission to a sanatorium is no longer justified and certain other cases, for whom sanatorium admission is improbable or perhaps, presently, impossible, should receive the benefits of these therapeutic agents.

However, wholesale administration of these agents, at this time, is probably not in the best interests of each patient nor especially in the interests of the general population.

A person in whom it is reasonable to expect arrest even though surgery or other adjuncts are also necessary should certainly receive these agents. Surgery must fall within the time of drug usefulness, before resistance occurs. Many others will be benefited by them and arrest will

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(*) rest in bed and neglect.

sometimes be achieved in cases that seem hopeless at the beginning. However, many cases—especially the so-called "fibroid phthisis"—in elderly persons do reasonably well left alone. Many of these and others will not rest, much less abide by isolation precautions. These persons are the ones in whom drug-resistant organisms are prone to develop. Transmission of drug-resistant organisms would seem to be, at present, a real hazard of wholesome or haphazard therapy with drugs alone.

Therapy once begun should not be interrupted until the desired results are achieved or until it ceases to be effective. Interruption of drug therapy for any cause prior to arrest or inactivation makes success at reinstitution of therapy much less probable[5].

In other words, any measure of success that is to be enjoyed in the home therapy of tuberculosis by presently available therapeutic agents will be dependent upon the individual physician. Conscientiousness in the selection of patients, patience and diligence in continuing therapy. keeping records, and prodding patient and/or agency to assure a regular supply of drugs as well as regular and adequate follow-up, are necessary. The physician will further be amiss if he does not ascertain that the patient and his family or associates are properly educated in isolation techniques.

Despite the health department's willingness to help in all of these situations, there can be no shifting or responsibility from the physician who initiates treatment.

The usually accepted indications for treatment and a suitable routine for drug administration are outlined in the policy under consideration.[1] However, it may be well to point out that, in February of 1953, the American Trudeau Society's committee on therapy recommended the use of intermittent streptomycin and daily PAS as the "chemotherapy of choice in the treatment of most patients with tuberculosis."[6] "Idiopathic" pleural effusion was not included among the situations to receive drug therapy These should be treated, I believe, for six to eight months, or longer, depending upon clinical and radiologic findings at that time.[7]

Since all of the therapeutic agents under consideration are available to any physician desiring to use them, since there are differences of opinion as to what constitutes the best routine treatment utilizing these agents and since "expert" opinion regarding indications and routines for use of these agents is constantly changing, there would appear to be no good purpose in voting to adopt the policy presented. The statements contained in the policy should however be of value in emphasizing the need and indications for home treatment of tuberculosis. The therapeutic régime outlined is probably as good as any other and should serve well when used as recommended. I believe, however, that there is no substitute at present for sanatorium treatment and that physicians needing or desiring to institute home therapy should familiarize themselves with the current concepts of tuberculosis and the chemotherapeutic agents available in order that they may accept the responsibilities involved. If paragraph "d", page 3, of the brochure[1], is carried out to the letter, one would certainly not be treating all active cases of tuberculosis—particularly in negroes and the aged who could not be hospitalized.

Dr. Nicholas d'Esopo, who directed a pilot study on rest therapy at the V. A. Hospital in Sunmount, N. Y., has recently pointed out that chemotherapy alone may be specific therapy in selected cases, however, he warned against modifying bed rest without long-term chemotherapy and against starting chemotherapy with patients outside a hospital[8].

Finally, an additional control measure, related to case finding, might be considered for addition to the program in Mississippi. It is common knowledge that the family is an important epidemiologic unit in tuberculosis as well as certain other diseases. The institution of routine tuberculin testing, at least yearly, in school children, would, in my opinion, give access to persons otherwise unsuspected through examinations of all contacts in the interval prior to tuberculin conversion.

SUMMARY

Reasons for desirability of an adequate program for control of tuberculosis are mentioned.

The current measures in use in Mississippi's control program are:

1. Casefinding by physicians.
2. Casefinding by x-ray surveys.
3. Sanatorium therapy of some infectious cases.
4. Education of the public.
5. Treatment of tuberculosis in the home by private physicians with the cooperation of the county health departments.

An additional measure for use in the control program, tuberculin testing of school children was suggested.

The motivating issue, chemotherapy in the home, was considered. Even though it was felt that such therapy for selected cases was desirable, no formal adoption of a policy for therapy seemed indicated. The information contained in the statement of policy is informative and its conscientious application may have a place, at this time, in the overall program. Physicians are urged to be mindful of the responsibilities incurred when home chemotherapy is initiated.

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Fifty Year Club Biographica

HAL MABRY TERRY

Hal Mabry Terry, son of William Waverly and Mary DeKalb Terry, was born January 25, 1882, near Goodman, Mississippi.

He received his early education in the schools of Attala County and later attended Iuka Normal Institute, Iuka.

After receiving his medical degree from Atlanta College of Physicians and Surgeons in 1902, Doctor Terry did postgraduate study at Tulane University.

Since obtaining his license to practice medicine in Mississippi in 1904, Doctor Terry has practiced in and around Goodman.

He has been a member of the North Central Medical Society since its organization and has served as local surgeon for the Illinois Central Railroad since 1935. Also, he has served as college physician for Holmes Junior College since 1941. He is a member of the staff of the Community Hospital, Durant, member of the Methodist Church, Masonic Order and Order of the Eastern Star.

In March of 1954, Doctor Terry received the Masonic Fifty Year Certificate.

At the meeting of the State Medical Association on May 11, 1954, Doctor Terry was honored with lifetime membership in the Fifty Year Club honoring his fifty years of service to humanity.

For many years, Doctor Terry has rendered outstanding medical service and has served faithfully and well many of the citizens of his community.

CHARLIE HINDS HOLMAN

Charlie Hinds Holman, son of Dr. Isaac, J. and Annis McCarty Holman, was born October 7, 1880, in Hemingway, Mississippi.

After graduation from Memphis Hospital Medical College (University of Tennessee) in April 1903, Doctor Holman began the practice of medicine in Carroll County.

Doctor Holman has served as president of the North Central Medical Society, Carroll County Medical Society, as school trustee, county health officer, registrar of vital statistics and physician for Selective Service.

For many years, Doctor Holman has served his fellowman faithfully and well and the Fifty-Year Club of the State Medical Association has honored him with lifetime membership.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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EDITORIALS

WE CAN'T IGNORE IT

Problems in human society are many and increase daily. Perhaps no social problem at present concerns us more than youth delinquency. Crime experts and social and economic scientists are all turning with alarm to this problem. In the United States we have 19 million boys and girls between the ages of 10 and 18 years. It is estimated that one million of them will be in the courts this year. Crime in this class has increased about four times within the last five years. We recently saw an indicting finger pointed at the 22 million comics coming out each month as responsible for a great percentage of youth crime. Along with this literature, much of which is barred from the U. S. mails, doping, smoking and drinking are counted major offenders.

The medical profession, of course, feels a concern in all of this, and would seek the right answer. In our state now the Mississippi Children's Code Commission is making a survey and study of conditions that might permit a deeper explanation. Physical handicap, poverty, disease, and broken homes are findings that undoubtedly are causes rather than effects of emotional disturbance. It therefore devolves upon society to prevent in order to cure an evil so devastating as youth delinquency. The findings from completed surveys in three Mississippi counties point to no glaring imbalance between white and colored transgressors; the ratio is about the same by population. Great is the responsibility of our profession to provide an answer that can elicit cooperation from social and political forces; else the pendulum might swing beyond our reach.

INSURANCE

The people of the United States are becoming thoroughly hospital minded. It is estimated that 90,000,000 people in the United States now have hospital coverage. Mississippi has more than 270,000. Mississippi has 129 hospitals in which Blue Cross and Blue Shield operate. Across the nation these members have access to more than 4,000 hospitals. The Blue Cross seems to be the preferred insurance with the average person, although other good insurance companies are seeking to give good hospital coverage for both medical and surgical cases. Hospital insurance, while marking a new day in the field of medicine and surgery, is serving the people well. But we have some difficulties. The aim and the ideal is to give people better service for less money. This is not so easy, but it is possible with the proper cooperation between the insurance company and the client. only strict honesty on the part of both will warrant the sick patient being well served.

Insurance enables people to cooperate in a way to benefit all of human society. The person who figures to collect every dollar he puts into insurance each year in bills paid at the hospital does not understand the purpose of insurance or else he is looking for something for nothing. Either way he is not doing the best for himself or his neighbor The person who is glad he does not have to go to the hospital and collect his insurance, but feels that his good health is helping the unfortunate sick, has the right attitude.

There is a growing tendency to try to make money from insurance by taking out several policies. This is devastating. Taking out insurance for protection against illness and to help one's neighbor is good human economy.

A stitch in time also saves. The person who has insurance and can go right on to the hospital when he gets sick has much to gain. A rapid cure and the prevention of more serious illness is an inestimable saving. Immediate treatment of a cold, a sore throat, or influenza might prevent a serious heart trouble later. Other threats to future health may be detected and dealt with later. Insurance against illness seems imperative, but the insurer and the insured must understand and practice integrity. The sick patient may need to level off on his demands. On the other hand, those administering medical service might get off the labor union idea and put in a little more time for good measure. The labor union plan for doctors, nurses and hospitals cheapens honored professions.

SMA IN ST. LOUIS

The Southern Medical Association is again holding its annual session in the city of Saint Louis, where the North and the South and the East and the West meet. Saint Louis has excellent accommodations for a large convention. This city is accessible from all parts of the United States, and especially from the South. A fine program has been arranged and the sessions promise to be very fine.

Mississippi has always been active in the Southern. It now has three living past-presidents: Drs. W. W. Crawford of Hattiesburg, and Felix J. Underwood and Harvey Garrison of Jackson. Dr. Crawford was one of the organizers and leaders in the formative years of this association. He has missed few meetings in his life.

Doctors of Mississippi should attend and take an interest in the Southern Medical, that it may live and grow and continue to serve the medical profession in the future as it has in the past.

HOSPITAL ASSOCIATION MEETING

The annual meeting of the Mississippi Association convenes October 13, 14, 15 at the Heidelberg Hotel, Jackson. Under the leadership of President Preston L. Hill of Picayune, a progressive program has been announced, of special interest to administrators and inclusive of all hospital affiliated groups.

Dr. Omar Simmons of Newton is the incoming president of the association.

News and Comment

Dr. Alphonse McMahon

Dr. Alphonse McMahon of St. Louis is the distinguished president of the Southern Medical Association which holds its annual session November 8-11 in the president's home city. He has been active and prominent in the Southern Medical Association now for a number of years. He has served on the council, chairman of the Executive Committee, and chairman of the Section on Medicine of the SMA. Dr. McMahon is outstanding in the field of general medicine as a practitioner and as a teacher. A versatile type of man, he is civic minded, musically and dramatically talented.

An ardent Catholic, Dr. McMahon is a member of the Catholic Physicians Guild, a fourth degree Knight of Columbus, and a former president of the Layman's Retreat League of St. Louis.

He is a member of Alpha Omega Alpha Honorary Medical Fraternity, Sigma Psi National Honorary Scientific Fraternity, Alpha Kappa Kappa Medical Fraternity, University Club and Bellerive Country Club. He maintains membership in a number of medical societies and has been president of the St. Louis Medical Society, the American Therapeutic Society, the Mississippi Valley Medical Society, and has been vice-president of the American Medical Association. He is Chief of Staff of St. John's Hospital in St. Louis.

HE BUILT HEALTH ASSETS

Every person in Mississippi cites with pride the national recognition given Dr. Felix J. Underwood in a recent issue of the AMERICAN MAGAZINE. It would be hard to estimate the service Dr. Underwood has rendered our beloved state. He recognized many years ago that the strength of a nation is in the health of its people, but that his state ranked near the bottom in public health. He determined to build on the foundation laid by the late Dr. W. S. Leathers and others. He had a great public health vision and organizing ability second to none in this nation. He had a burning desire in his soul to see his people healthy, strong and happy. He put his hand to the plow with service above self and now his state stands at the very top in health assets. He has recognized the importance of building a citizenship adequate to meet any problems that might arise. His plan and his life have been to develop people physically, mentally and spiritually. He has built a monument of health service that extends into the far future. Our state and every citizen should be grateful for the service he has rendered.

The article is illustrated with photographs taken by Jimmy Ward of the JACKSON DAILY NEWS.

WILKINSON-AMITE SOCIETY

The Wilkinson-Amite County medical society held its September meeting at the Field Memorial Community Hospital. After an excellent dinner served by Miss Bowles and her staff of nurses an interesting program was rendered by Drs. H. W. Jolly and C. I. Black. They discussed intrinsic and extrinsic factors in the cause of carcinoma of the skin and the treatment of cancer over cartilage with fractional doses of x-ray.

Out-of-state guests included Dr. and Mrs. Paul Jackson and Dr. Clovius Toler, of Clinton, La., Mrs. H. W. Jolly and Mrs. C. I. Black, who accompanied their husbands from Baton Rouge, La.

NO FUNDS

The most fatal of all diseases if contracted is rabies. Its fatality is one hundred per cent. Prevention is the only treatment. The State Board of Health in Mississippi has done a good job preventing this disease. For lack of funds now the program cannot be carried on as it has been. This is unfortunate and would seem to be poor human economy. The preventive treatment of rabies is just about one hundred per cent.

We owe a debt of gratitude to Dr. Underwood and our State Board of Health for the service it has rendered in protecting the child, or we might say the entire population, against hydrophobia.

UT OFFERS TWO POSTGRADUATE COURSES

A course in clinical electrocardiography will be held October 6, 7 and 8 in the Institute of Pathology. It will be under the direction of Dr. I. Frank Tullis, chief of the Division of Medicine, and consist of lectures, demonstrations, and supervised reading of practice tracings, all of which are designed to provide a review of this subject for practicing physicians.

A course in cardiac arrest, prevention and management, will be held October 14 and 15. It will be directed by Dr. Harwell Wilson, chief of the Division of Surgery, and Dr. Sam H. Sanders, head of the Department of Otolarynology, and will include demonstrations in the Experimental Surgery Laboratory with class participation.

Both courses will be limited to twenty physicians.

ANNOUNCEMENTS

R. A. Brannon, Jr., M.D., announces the opening of his office for the practice of dermatology. 301 Medical Arts Building, Florence, Alabama.

Walter S. Ridgway, M.D., announces the opening of his office at 653 North State Street, Jackson, Mississippi. Practice limited to Obstetrics and Gynecology.

The Surgical Clinic announces the association of Carl Dyess Brannan, M.D., for the practice of General Surgery, and the removal of offices to 710 North State Street, Jackson 2, Mississippi.

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Large Abdominal Aortic Aneurysm Treated by Excision and Replacement With Aortic Graft

HARWELL WILSON, M.D.†
JAMES D. HARDY, M.D.†

Memphis, Tenn.

An aneurysm of the abdominal aorta presents a most difficult surgical problem. Abdominal aneurysms are almost always due to arteriosclerosis. Because a larger percentage of the population now lives to a much older age it is reasonable to believe that there will be an increase in the number of patients with this condition. In a few instances the aneurysm remains rather stationary in size for a considerable period of time. In many cases, however, there is a very definite and rapid progression in the size of the aneurysm with death eventually resulting from rupture into the abdominal cavity.

The patient with a large pulsating vascular mass in the abdomen is always aware of the fact that the "sword of Damocles" is hanging by a fine thread above his head and only recently has a successful definitive treatment for this condition been established.

Many attempts have been made in the past to control these dangerous vascular lesions by surgical means. However, until recently all such efforts were disappointing. Occasional patients have been given palliation by having the aneurysm wrapped with various types of membrane such as cellophane, and occasional patients have been benefited by having a coil of fine wire inserted into the aneurysm so that additional clotting within the aneurysmal sac might be produced by passing an electric current through the coil of wire. Such methods of treatment while offering an occasional patient palliation were never curative.

Recently, it has been shown feasible to excise a large abdominal aneurysm and restore aortic continuity with a preserved homologous graft. The outlook for such patients has thus greatly improved. The initial experience with homografts in the replacement of a deficit in the aorta was obtained in cases of coarctation. Gross[1] demonstrated first in experimental animals and later in patients that preserved grafts taken from the aorta of another individual could be used successfully to restore continuity to the largest artery in the body. More recently this experience has been extended and a few patients have been reported from various mdical centers as having aneurysms of the abdominal aorta successfully treated by excision and replacement with a homologous graft. DuBost[2], Bahnson[3], DeBakey and Cooley[4], and Julian[5] have made significant contributions to this problem. We wish to report our experience with this method in the treatment of a patient with a large abdominal aneurysm and also to discuss briefly the method used in the preparation and preservation of the arterial graft.

Case Report

Mr. H. N. entered the Baptist Hospital on August 29, 1954, having been referred to the senior author by Dr. Paul Googe of Charleston, Mississippi. The patient complained of having a grapefruit-sized mass in the abdomen which continually pulsated. He voluntarily stated that the mass produced a sensation similar to that which might be obtained from having a loaded shotgun continually punching one in the abdomen. Six weeks prior to admission the patient first noticed a pulsating mass in the abdomen which appeared in the region of the umbilicus and slightly to the left of it .

During the next few weeks this mass appeared to enlarge constantly. It was associated with relatively little pain. The patient could not, however, comfortably turn upon his stomach or left side since this gave him a sensation that rupture might occur. The past history revealed that the patient enjoyed relatively good health except that for some years he had had rheumatoid arthritis for which he had been taking cortisone more or less regularly for a period of many months. Physical examination showed the patient to be in relatively good general condition with the exception of the arthritis and the large abdominal aortic aneurysm. The blood pressure was 140/75. Examination of the chest did not reveal anything remarkable except for some enlargement of the heart. On inspection of the abdomen a mass could be seen in the region of the umbilicus which pulsated visibly. This mass measured approximately 4½ in. by 3½ in. A femoral pulse and a weak dorsalis pedis pulse could be felt in both lower extremities. The oscillometer revealed good pulsation in both the right and left calf. X-ray examination of the chest revealed a somewhat tortuous thoracic aorta with some widening of the aorta at the arch and in the descending portion of the thoracic aorta. A plain film of the abdomen outlined

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†From the Department of Surgery of the University of Tennessee College of Medicine and the Baptist Memorial Hospital, Memphis, Tennessee.

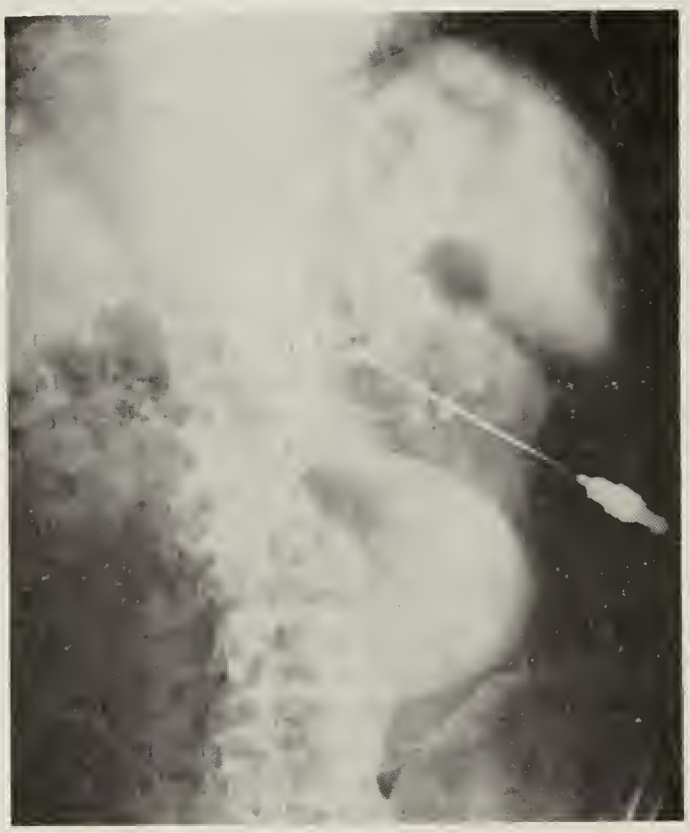

Fig. 1. *Aortagram made immediately after injecting 25 cc. of urokon into the abdominal aorta demonstrates the large aneurysm arising just below the renal arteries. The splenic and the superior mesenteric artery is demonstrated as well as the renal vessels.*

the large abdominal aneurysm. A portion of the aneurysm was definitely outlined by a ring of calcium at its periphery.

It was apparent when the patient was first seen that this aneurysm was an extensive one and probably involved almost all of the abdominal aorta. It became imperative to detemine whether or not the aorta was involved at or above the origin of the renal vessels since it would not be feasible to successfully replace the aneurysm by a graft if the renal vessels were involved. Accordingly an aortogram was made. The patient was anesthetized with sodium penothal and placed in the prone position. A No. 18 gauge needle, 6" long was introduced into the abdominal aorta above the coeliac axis and 25 cc. of Urokon was rapidly injected. Following this, films of the abdominal area were made in rapid succession. As is shown in Figure I, the aneurysm was seen to arise about one inch below the renal arteries and extended to a point about 1/4 inch above the bifurcation. It was thus apparent that this case was suitable for excision and grafting. The patient was anesthetized by giving an induction with a small amount of sodium penothal. Following the induction, an endotracheal tube was inserted and the major portion of the operation was carried out with ether anesthesia. A long midline incision was used extending from just below the xiphoid to just above the symphysis. As soon as the abdominal cavity was opened the large pulsating aneurysm presented since it tended to push the overlying small bowel to either side. The transverse colon was displaced superiorly and the small bowel was packed away on the side of the abdomen. Treitz's ligament was then divided and the duodenum was mobilized to the right. The peritoneum was opened directly over the aneurysm. Since the relationship of the renal arteries to the aneurysm appeared to be the most important factor which might limit the possibilities of operation, dissection was begun in this region. After considerable tedious dissection, which was done largely with a small gauze pusher, the vena cava and the aorta were separated just below the renal vessels. Finally an umbilical tape was passed around the aorta below the renal arteries. In this particular case we felt that another tape should be passed around the aorta above the renal vessels in order that hemorrhage might definitely be controlled with the tape in case an aortic clamp should later slip during the course of the anastomosis. Accordingly, after another period of tedious dissection which allowed us to expose and slightly retract the left renal vein, a tape was placed beneath the aorta above the renal artery. The artery. The renal vein, the left renal artery, the superior mesenteric artery and the splenic artery were in plain view as this portion of the dissection was carried out. Attention was then turned to the region of the aneurysm in the area of the bifurcation. The common iliac arteries were dissected free and a considerable amount of care was of necessity exercised iliac vein since these two structures are very in- in freeing the left common iliac artery from the timately associated. Tapes were then passed about both common iliac arteries. Careful gauze dissection was then utilized to separate the aorta from the vena cava. It was necessary to ligate and divide a few of the lumbar veins emerging from the vena cava. During the course of the procedure at one point a small ligature apparently slipped off of a lumbar vein near the vena cava. This was easily controlled by clamping the vessel and applying another ligature. At another point during the dissection of the aneurysm away from the vena cava, a 1 cm. tear was made in the vena cava. Crafoord clamps were applied above and below the tear in the vena cava. The opening was readily sutured with fine arterial silk. After the vena cava had been separated from the aortic aneurysm a few of the lumber arteries which emerged from the aorta posteriorly were exposed, ligated, and sectioned. It was impossible to ligate all of these vessels prior to excising the aneurysm. An offset clamp was then applied to the aorta about 1 cm. below the renal arteries. Pott's clamps were next placed across the common iliac arteries just below the bifurcation. The aorta was divided about ½ inch distal to the superior clamp and about ¼ inch proximal to the bifurcation below. The aneurysm was then rather quickly removed in its entirety. The few remaining lumbar arteries which had previously not been ligated were readily clamped and controlled with ligatures. A suitable graft was selected from the bank and this graft which had been preserved by the freeze-dried technique was reconstituted and placed in the defect. A large graft was used; this graft actually being a portion of thoracic aorta. The reconstituted graft was five inches long. The intercostal vessels emerging from the aortic graft were tied with fine silk and the position of the graft in placing it was changed so that its original dorsal surface now became its ventral surface. This caused the vessels which had been ligated and which emerged from the posterior aspect of the aorta normally, to present anteriorly.

Thus, if any bleeding should occur from one of these ligated vessels it could be easily controlled. The graft was sutured in place using a continuous over-and-over suture of fine arterial silk on an atraumatic needle. The aorta was very sclerotic where it was divided above the bifurcation. The sutures were placed usually about 1½ mm. apart. In some areas, however, it was impossible to pass the needle through the aorta because of the extensive amount of calcification present in its wall. Because the aorta of the patient was larger than that of the graft it was necessary to cut the graft on the bias to a slight degree in order to compensate for this discrepancy in size. Realizing that because of its elasticity the graft would appear longer once it was subjected to the normal arterial pressure, the graft was cut to such a length that a slight amount of stretch had to be placed upon it in order to fill the defect. After the graft had been sutured in place both above and below, the clamps were released from below and the graft was allowed to fill with blood by back-bleeding from the common iliac vessels. It was necessary to place an additional interrupted suture in both the lower and upper areas of anastomosis. Following this there was no bleeding and clamps were removed. A good pulsation was immediately noted and a good femoral pulse immediately made its appearance. The area was observed for approximately five minutes and appeared to be dry at the end of this time. Although at no time was there any uncontrolled hemorrhage, the patient was given slow replacement transfusion therapy throughout the course of operation because of the extensive nature of the procedure. The blood pressure remained normal throughout the course of the operation. The abdomen was closed in the usual manner, using catgut for the peritoneum, interrupted cotton for fascia, silk for skin. In this particular case through-and-through tension sutures were also used.

A Foley catheter was placed in the bladder so that the urinary output might be carefully followed. There was a satisfactory urinary excretion throughout the postoperative course. The patient was placed upon one million units of penicillin daily. On about the seventh postoperative day a rash which was believed to be due to the penicillin appeared and about this time the patient showed a temperature elevation of 99.8 F. The penicillin was discontinued and achromycin begun. The elevation of temperature shortly subsided. However, the patient became nauseated and this became somewhat disturbing. After the achromycin was discontinued symptoms of nausea subsided. The patient was allowed to become ambulatory about seven days after operation. Had it not been for the fact that he was troubled by rather severe arthritis, he probably would have been ambulatory much sooner. On the fifteenth postoperative day he was discharged from the hospital at which time he appeared to be feeling relatively well and had been walking around in the room and in the corridor of the hospital. The patient was eating satisfactorily and was sleeping well. Reports received after the patient left the hospital revealed that the patient was feeling well and enjoying a rather routine way of life.

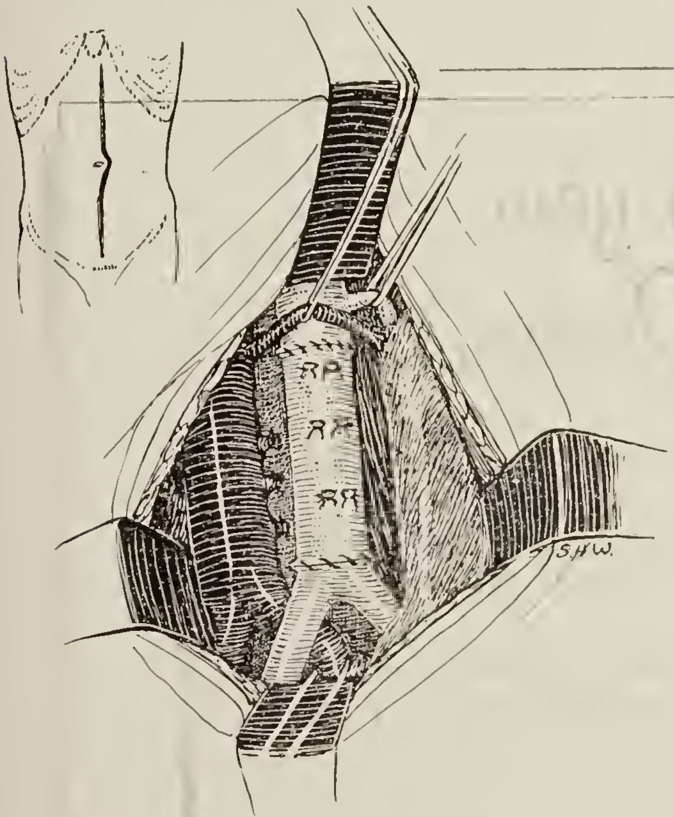

Fig. 2 Artist's conception of completed operation. *Homologous aortic graft 5" long filled the defect from just below the renal vessels to just above the bifurcation. Continuous fine, arterial silk sutures were placed about every 1½ mm. in performing the anastomosis.*

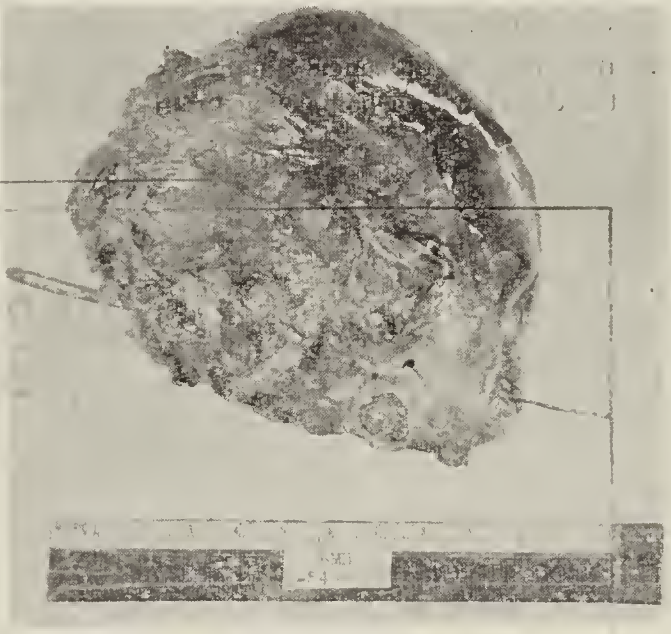

Fig. 3. *Excised aortic aneurysm as seen in surgical pathology laboratory before specimen was opened.*

Artery Bank

Grafts for the artery bank are obtained in the autopsy room from individuals under forty years of age who have healthy arteries. The donor in addition to having healthy arteries must have evidence of any communicable disease. The aorta is removed within a few hours after death and is sterilized in ethylene oxide. Following this, the sterilized graft which is contained in a large test tube is placed in a container filled with alcohol and dry ice. The temperature of this mixture is hermetically sealed and the graft is maintained in a dehyrated state. Such grafts prepared by the so-called freeze-dried technique may be kept for as long as two years. During the process of lyophilization the graft shrinks to about two-thirds of its original size. About twenty minutes before the graft is to be used, the hermetically sealed test tube is sterilized and the graft is placed in saline. Shortly after this is done the graft returns to its normal state of elasticity and to its previous size and consistency. This method of preparation offers many advantages over the older method which consisted of preserving the graft in sterile salt solution or keeping it in a deep freeze. The present method allows the graft to be kept for a much longer interval of time and it also allows the graft to be transported with much more ease.

Summary and Conclusions

1. An aortic aneurysm presents one of the most serious problems which may confront a patient with arterial disease and the physician who is responsible for his care.
2. Resection of the aneurysm and restoration of the defect with a homologous graft offers these heretofore near-hopeless patients a possibility of cure of the aneurysm.
3. The advantages of homologous grafts preserved by the freeze-dried technique are outlined.
4. Personal experiences with a patient treated by resection of a large abdominal aneurysm and replacement of the defect with a homologous graft are reported.

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The Simplicity of Biopsy in the Diagnosis of Cancer*

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Biopsy is the study of living tissue. It began with Antony Leeuwenhoek in about 1690, who first carried out the early studies on blood cells. Since then innumerable contributions in the preparation of tissue for microscopic diagnosis and an accumulating mass of knowledge concerned with the interpretation of such tissue has brought this procedure to its present point of usefulness.

Insofar as cancer is concerned biopsy has three primary uses: 1) to differentiate cancer from other clinically similar conditions; 2) to aid in determining the probable behavior of the cancer as a guide to treatment and prognosis; 3) to identify metastases or recurrences in the already treated patient.

About thirty years ago there were not a few who objected to the use of this valuable procedure and many of these were extremely vociferous in their objections. Tizer, in 1913, and Knox, in 1921, using transplanted animal tumors, found a marked increase in the number of metastases in animals whose tumors were massaged regularly as compared to a nonmassaged control group. Marsh, in 1927, using spontaneous mammary cancers in mice, made similar observations when massage was employed. Of course, no one wished to manhandle cancers, but these observations aroused considerable question as to whether the incision or excision of malignant tumors might contribute to their spread. Wood, in 1919, using a large series of transplanted cancers was unable to determine any increase in the percentage of metastases in animals whose tumors were either excised or incised. It is extremely difficult to transmit information obtained from animal cancers, especially transplanted cancers, over into the field of human cancer, and all possible objections might be raised insofar as biopsy is concerned on the basis of animal experimentation should be looked upon with a considerable degree of skepticism. There appears to be no substantiation for the possible harmful effects of biopsy in the enormous accumulating mass of clinical material. It seems certain, and is now quite generally agreed, that the earlier the diagnosis of cancer is established and suitable treatment is carried out the greater is the patient's chance for cure, and that if biopsy should under any circumstance have some harmful effect, it is enormously outweighed by the benefits derived from it. Nevertheless, among those who still feel that disadvantages, however theoretical, still exist, this influence is still reflected in a hesitancy to biopsy melanomas and testicular tumors, etc., for example. They feel that the theoretical objections may be still further minimized by performing incisional biopsy rather than excisional biopsy, for example, or by using the endotherm rather than the scalpel. Clinical experience does not appear to substantiate these fears or establish the advantage of one method over another, however. In the light of our increasing knowledge of the relationship of a cancer to its host it seems probable that metastases depend far more on a favorable relationship between the two than on externally imposed mechanical factors.

Material for biopsy may be obtained in several different ways. The technique employed in obtaining a biopsy will, of course, depend upon the type of lesion present. The majority of biopsies will therefore be obtained from cancers of epithelial surfaces.

TECHNIQUE OF SURFACE BIOPSY

Surface lesions accessible to biopsy will include those of the skin, upper respiratory tract, upper alimentary tract, lower urinary tract, lower alimentary tract, and the female genital tract with the exception of the tubes and ovaries. All surface lesions accessible without the aid of special endoscopic instruments may be readily biopsied in the office.

Though the host endows his cancer with a blood supply he does not contribute to it any nerve supply. Hence these lesions are all insensitive except at their junction with normal tissue and may ordinarily be biopsied without the use of novocain. In small lesions, however, or where it seems desirable to perform the biopsy at the junction of the tumor with the normal tissue, a small amount of novocain may be necessary. An appropriate biting forceps so facilitates the procedure as to be absolutely essential. Our own preference is for an ordinary Gayler forceps of the type which may be purchased from almost any surgical supply house for a few dollars. This should be as essential a part of the office equipment of every doctor as is his stethoscope and sphygmanometer. The early diagnosis of cancer is as important as adequate treatment of it and both the family doctor and the cancer therapist must jointly share therefore in the responsibility for the final outcome of the patient.

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*Presented at the sixty-fifth annual meeting of the Mid-South Postgraduate Medical Assembly,, Memphis, Tennessee, Feb. 9-12, 1954.

In making the biopsy a generous piece of tissue is ordinarily bitten from the tumor just within its junction with the normal tissue, and the specimen is then deposited in a small bottle of ten per cent formalin. Bleeding is always minimal and is readily controlled by the application of a small cotton sponge for several minutes.

In the interest of more accurate histologic reporting it is essential that an adequate clinical description of the lesion accompany the specimen in forwarding it to the pathologist. Pathologists are not infallible. Cancer does not ring a bell when placed on the stage of a microscope and the incidence of correct diagnoses will be greatly enhanced if the pathologist is given a brief but accurate clinical description.

BIOPSY OF SUBSURFACE LESIONS

Lesions situated somewhere beneath the body surface may be sampled by way of an appropriate penetrating instrument or by way of a surgical incision; hence, the terms needle biopsy or formal biopsy.

Needle Biopsy

There have been rather vociferous objections raised to needle biopsy primarily because of the possibility of the seeding of cells along the needle tract. I, personally, have never observed such an occurrence nor have I been able to learn of such an observation on the part of anyone who practices this technique with any frequency. There is no question that human cancer cells can become implanted and unquestioned instances of the implantation of human cancer cells can be found in the literature. However, this must take place very infrequently. We know, for example, that when an abdomen is entered in which carcinomatosis is present that the walls of the abdominal wound are literally bathed in fluid containing cancer cells. Yet even under such extreme instances implantation of cells is very seldom seen in the wound. One valid objection to needle biopsy which must be granted is that it is somewhat less accurate than formal biopsy. However, if, as in all forms of biopsy, it is constantly borne in mind that negative materials in the face of strong clinical evidence warrants repetition of the biopsy, this objection may be circumvented.

The great advantage of needle biopsy is that it is so much simpler to perform than formal biopsy and may in most instances, therefore, be accomplished in the office. Because it is so much simpler it is apt to be done earlier and much more frequently with the uncovering of more, otherwise occult, cancers. It does not interfere with subsequent surgery and in certain instances such as the prostate where a small focus of cancer may exist in an otherwise normal gland it provides better sampling of a tissue mass than would a transurethral biopsy. It, also, enables one to plan surgery before entering the operating room. This not only involves the time of the surgeon and the operating personnel but enables one to discuss the surgery in a much more enlightened manner both with the patient and his relatives. In the case of possible amputations, for example, this is extremely helpful. There are definite limitations to the procedure of needle biopsy. One should not attempt to obtain material from lesions so small that it is impossible to be reasonably accurate in obtaining material from them nor should it be used in instances where the pathologist must rely for his diagnosis on his ability to study the architecture of tissue. The latter is especially true of the lymphomas. If an aspiration biopsy is done first, many patients will not be faced with the necessity of a formal biopsy.

Material needed for needle biopsy

1) Sharp, short bevel needle, No. 17 to No. 15 gauge
2) 30 cc. Luer-Lok syringe
3) 1 per cent novocain
4) No. 11 bistoury blade
5) fragment of blotting paper
6) 10 per cent formalin

Technique

The skin is cleansed with a suitable antiseptic. A small wheal of 1 per cent novocain is made. A small stab wound is made in the skin just sufficient to accommodate the needle, following which the needle with its abturator in place is introduced as far as the most superficial limits of the lesion to be sampled. The abturator is then withdrawn. The syringe is attached and with a gentle clockwise-counter-clockwise motion, with the plunger withdrawn so that good suction may be applied, the needle is advanced into the tumor mass. The ease with which material is obtained will depend upon the cellularity of the tumor. In general it is very easy to obtain material from carcinomatous masses. General needle biopsy is especially applicable to lymph nodes (excepting lymphomatous lymph nodes), parotid tumors, bone tumors, lung tumors, soft-part tumors, and prostate. After the needle has been withdrawn from the skin the cellular material is removed from within the syringe. Small fragments usually are seen coating the barrel of the syringe. These are placed on a small piece of blotting paper. The paper with the cellular material is then placed in a bottle of 10 per cent formalin.

In recent years liver puncture has become more popular than formerly and for this we prefer a needle of the Vim-Silverman type. It obtains material readily from the liver and with a single puncture. We do not believe that splenic puncture is a reasonably safe procedure.

Formal Biopsy

Formal biopsy is much more time-consuming than is needle biopsy and usually involves at least a minor operation. It usually requires hospitalization and, therefore, is considerably more expensive to the patient. In natural consequence, therefore, it is all too frequently deferred until the situation has become well advanced. A further objection to formal biopsy pertains primarily to lymph nodes which frequently harbor simultaneous infection. The ensuing biopsy wound infection may then interfere with the speedy accomplishment of the definitive radical node dissection. Formal biopsy is apt to be more accurate in the obtaining of tissue from the tumor mass however, and, as a rule, provides material more suitable for histologic study. In instances where the pathologist is interested primarily in tissue architecture it is absolutely essential that a formal biopsy be obtained. It, also, must be relied upon for frozen section examination in the operating room and has, therefore, won general acceptance as the best method for examining breast tumors, intra-abdominal tumors, etc., or at the time of laparotomy for the biopsying of suspected lesions far distant from the primary tumor in positively appraising the operability of the situation.

Cytologic Biopsy

Cytologic biopsy is invariably inferior to forceps biopsy when the latter is readily available. Cytologic study is especially valuable in obtaining material from organs which have a tubular exit to the exterior such as is the case with the lung or kidney. One should, also, mention here the great diagnostic possibilities inherent in an examination of ascitic and pleural fluid. Whenever such material is removed from a patient in which the diagnosis is not clearly due to some well established condition, such fluid should be sent to the laboratory where it may be centrifuged and a careful examination of the cellular sediment readily made. Very often totally unsuspected carcinoma may be diagnosed by this means.

Curettage

The removal of material by way of a curette is, of course, not indicated where the biting forceps may be employed. However, in long narrow cavities such as the uterus or in chronic sinus tracts it is an extremely useful procedure.

It has been the purpose of this brief discussion to outline simple, practical methods for the quick and easy diagnosis of lesions suspected of having a cancerous nature, especially insofar as such procedures may be employed in one's daily office practice. It is probable that approximately seventy to eighty per cent of all cancers are amenable to office diagnosis by the use of either a suitable biting forceps or an aspirating needle. The surface biopsy of lesions requiring more complicated endoscopic procedures such as those in the esophagus, bronchus, and bladder, the needle biopsy of deeply situated lesions such as those in the prostate, lung, etc., and lesions suitable only for formal biopsy should be done in the hospital. These make up a small minority however of all of the lesions encountered in general office practice.

In conclusion, therefore, I should like to state:

1) that the prompt diagnosis of cancer is as important to the patient as is adequate treatment.

2) that since most cancer patients will first consult their family doctor the enviable opportunity to make the diagnosis properly rests with him.

3) that a few pieces of inexpensive equipment judiciously used and a twelve ounce bottle of 10 per cent formalin will enable him to avail himself of this opportunity in the great majority of patients with cancerous lesions.

The Current Status of Radio-Isotope Therapy*

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THE MOST important uses of radioactive isotopes for medicine are as tools for research. I mean that there is more ultimate profit in using their radiations with which to measure things than to irradiate patients. I wouldn't be surprised to see isotopes solve the cancer problem; but if they do, it will be by providing the means of finding out what cancer really is, not as a mode of radiation therapy. That doesn't relieve us from the duty to put them to use as therapeutic agents wherever they are affective, and to develop new therapeutic uses where we can. Fact is, the field of isotope research is still so new and promising that the gold rush has hardly yet begun to calm down. New therapeutic uses are being reported every year.

Polycythemia is very nicely handled with radioactive phosphorus (P_{32}). Five or six millicuries will often obviate the need for blood-lettings over a period of a year or more. This is an uncommon disease, but if you are looking for a place where isotopes provide the treatment of choice, this is it. All other therapeutic uses of isotopes are more or less on probation.

P_{32} is a very good therapeutic agent in chronic leukemia of either type. It does not give any cures. X-ray treatment does about as good a job when managed by the same skillful therapist. The acute leukemias do not respond to this any better than to other radiations. Aminopterin or other chemotherapy is the thing to use for acute leukemia. But nothing that we have today makes the prospect much less black.

In cases of leukemia where the huge spleen becomes a problem, it is sometimes better to irradiate just that, rather that the whole body. Instead of x-ray, one can, in such case, use colloidal radioactive gold (Au_{198}) by vein. This is picked up selectively, you hope, by spleen and liver, whereas P_{32} concentrates throughout the bone marrow as well. In one case we were disappointed in Au_{198}. We do not know whether it was the disease or our previous x-ray treatments that had altered the spleen to prevent the usual uptake of colloid there.

In multiple myeloma we have found P_{32} pretty ineffective, not worth trying. Low-Beer* thinks it might promise a little something in one case out of four or five. We are now trying radioactive iodine (I_{131}) and have been enough encouraged so that we plan to collect data on more cases. Why it should concentrate in these tumors in some of the cases is not clear. It may have something to do with the plasma cell's production of antibody globulins, which we know can be labled with I_{131} in the test tube: At any rate we are setting our sights only on palliation—no cures are expected.

In Hodgkins, I don't think P_{32} worth trying, unless in desperation in a few cases where infiltration of the skin and the consequent itching prove intractable. Usually x-ray and nitrogen mustard are far and away the most effective agents in Hodgkins. We are still arguing whether an occasional case of Hodkins may be cured outright by surgical extirpation of the single group of lymphnodes in which it has started.

One of the most spectacular uses of isotope therapy is in thyroid cancer, but the spectacle occurs infrequently. Only about one cancer death in 200 is thyroid cancer. And only about one thyroid cancer in 10 takes up iodine. My own experience is unusually fortunate. Out of a comparatively small number of thyroid cancers, we have had four that took up iodine well. One has at the moment no perceptible disease remaining. She is a young woman who was operated on elsewhere and her I_{131} therapy initiated there. As we continued the monthly doses, the residual areas of uptake in her lungs disappeared. If they were actually metastases, they were never visible by x-ray. Another patient, who died of his cancer, illustrated a prominent feature of these cases, namely the uneven uptake. Not only does the I_{131} collect in a patchy fashion as shown in radio autographs, but one large metastatic tumor may show activity while others pick up none. Then later when the one tumor has regressed under the internal irradiation produced by the first dose, a second dose will leave this spot cold, but be taken up by one or several of the other metastases. The case I am referring to here was a man who had his entire sternum replaced by cancer over a period of 20 years, during which time he never went to a doctor. At first it took up no iodine, but after some big doses had destroyed the residual normal thyroid, and I had finally persuaded him to lay off his thyroid pills a while, the tumor began to take it up. At autopsy good uptake was demonstrated in the sternal tumor, a little in a big scapular tumor and none in a big metastasis in the pubic bone.

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*Presented at the sixty-fifth annual meeting of the Mid-South Postgraduate Medical Assembly, Memphis, Tennessee, Feb. 9-12, 1954.

Footnote.* No literature is being cited in this survey. Anyone planning to use radioactive isotopes will have to make himself an expert in the field or to have the consultation of an expert.

Our youngest patient was 4½ when her thyroid was removed, and the glands in her neck. Many of these were replaced by cancer which took up iodine well. She was held without thyroid replacement therapy until myxedematous and then regular moderate doses of I_{131} given monthly. Several metastases have appeared in one place and another in her abdomen, some of which have been palpable. These have gone down one after another under the radiations of the I_{131} that they took up. She remains in good apparent health and is going to school. She goes without thyroid pills for a week before each monthly dose. I consider her outlook hazardous indeed, but so far the I_{131} has knocked down her cancer without knocking out her bone marrow.

Some investigators have been using quite large doses, *i. e.*, 200 mc. of I_{131}. This is about all the bone marrow will bear, and cannot be safely repeated soon nor often. Considering the patchy uptake in thyroid (either normal or cancer) it seems possible that no tolerable size of dose can affect the spots of lesser uptake. If so, then one just has to wait until these spots respond to the stimulus of the pituitary hormone and learn thyroid physiology, so to speak. As they become vulnerable one can destroy them seriatim.

In regard to I_{131} therapy for benign thyroid disease, expert opinion has not become unanimous. In any particular case there are likely to be many clinical and environmental considerations affecting the choice of therapy. My feeling still is that the treatment of choice for Graves' disease is thyroidectomy. But I am not willing to quarrel with those who have decided to make I_{131} their routine therapy. In children, we are all much concerned lest the scar from internal over-irradiation (I_{131}) sitting there for a lifetime, may develop cancer. It may not be very likely, but we'd like to avoid the chance. If one does decide to give children I_{131} for benign thyroid trouble, one ought to do it thoughtfully, and accept the obligation to follow all one's cases for 50 years or more so that the hazard may be precisely measured. For patients over 30 the carcinogenic nature of radiation scars does not loom so large.

The determination of dosage in Graves' disease is not well agreed on. The beautiful calculations based on preliminary measurement of percentage uptake and rate of disappearance from the neck together with palpatory estimate of the bulk of the gland look fine on paper. In the best of hands this method results in a good many cases' requiring retreatment and produces some hypothyroids. Only occasionally does the hypothyroidism fail later to return to a euthyroid state. Considering the effectiveness of thyroid replacement therapy, this is not a very disastrous outcome. The success of the treatment is not well correlated with estimated radiation dosage attained within the gland. Successes come from 4,000 r and from 10,000 r. It might be that this unpredictability arises out of the very patchy distribution of the uptake in many cases. Some workers are trying multiple doses of smaller size. The extreme example is the weekly administration of quite small therapeutic doses continued for many months.

Part of the difficulty in management is the large body store of thyroxine. Even if thyroid function were stopped off short, the hypothyroid state would not arrive for many weeks. One has to expect to wait two or three months before deciding whether the dose given has been sufficient. Two technics are available for making the evaluation earlier, by measuring the output of new thyroxine from the gland. One is to compare the I_{131} activity of the red cells (into which thyroxine does not penetrate) with the activity of the plasma. The other is to absorb the iodine (not protein-bound) onto an anionic resin. These are in the investigative stage of development.

When the toxic thyroid is nodular, then I would be pretty insistent on surgical treatment. The incidence of cancer in single thyroid nodules is 10 per cent or 15 per cent. The ordinary multinodular goiter is much less dangerous, but seldom toxic until secondary changes have developed.

Chronic heart disease is often incurable. In fact there are few curable heart diseases. Often the physician's best efforts fail to ameliorate the patient's condition enough for him to be comfortable. He is forever going beyond the little cardiac reserve that he possesses, or seems to have no reserve at all and is continuously decompensated. Such a person could be called a cardiac cripple. Some such patients can be restored to a more comfortable state if the load put upon their hearts is lessened, and this can be accomplished very nicely by making them moderately hypothyroid. Partial thyroidectomy will do it, and has actually been used. But in such patients it is wise not to add the burden of an operation, but to knock down the thyroid function by internal irradiation with I_{131}. As in treating Graves' disease, it is hard to be sure of the optimum dose. Probably regular treatment weekly or monthly is the best. If dosage is overdone, thyroid pills will be necessary to undo the overplus of "control". Real myxedema must be avoided of course, because it compromises the nutrition of the very heart muscle we are trying to protect.

Colloidal radioactive gold (Au_{198}) has been used by Hahn for several years for interstitial irradiation of incurable massive superficial cancers. Injected in multiple sites, it stays in the tumor remarkably well. Some wanders into tributary lymphnodes, which is all to the good. Recently some qualms have arisen on account of finding the bone marrow hypoplastic after such treatment, and demonstrating gold particles within it. The patients reported did not die of neutropenia, however, but of their uncontrolled malignant disease.

Recently the interest in Au_{198} has increased and it is now provided by Abbott in sterile, standardized, stable suspension. The particularly promising uses appear to be in prostatic cancer and in serious cavities. Ovarian cancer sometimes seeds itself all over the visceral and parietal peritoneum. Such a patient may be in fairly good general condition for many months, except for the rapid accumulation of ascites. The frequent tappings are bothersome and lead to distressing loss of protein and electrolytes. Colloidal Au_{198} in dosage of 100 mc. or 150 mc. often succeeds in holding the cancer in check and stopping the accumulation of fluid. Careful determinations of the relationship of radiation getting out to volume of saline that the dose is suspended in prove to be not critical. There should be enough volume (several hundred cc.) to ensure good distribution throughout the peritoneal cavity, but self absorption of the hard beta rays in the mass of fluid becomes quickly minimized by the tendency of the colloid to "plate out" on to the peritoneal surfaces. Any thick masses of tumor are, of course, beyond the reach of the beta rays. The gamma irradiation cannot be brought to a very high level, no higher indeed than what can be attained by external x-ray. One would therefore advise against Au_{198} where: a) Tumor is massive or in lumps more than a few mm diameter. b) Patient's condition is not good enough to appear favorable after fluid accumulation has been (shall be) stopped. c) Fluid is loculated, preventing even dispersion of the Au_{198} throughout the peritoneal cavity.

Recently it has been recommended that Au_{198} be used "prophylactically" in the abdomen if a malignant ovarian cyst has been ruptured at operation, with presumptive seeding of the peritoneum. This is the only situation in which one has a right to hope for cure.

In the chest, a similar rapid accumulation of fluid due to pleural metastases warrants injection of Au_{198}. The dose used is somewhat smaller—50 mc. or 100 mc.

In cancer of the uterine cervix, radium is remarkably effective against the primary tumor. Early cases however give no more than 75 per cent or 80 per cent of cures, presumably because of metastases to pelvic lymph nodes which the central radium placement cannot reach effectively. It has been demonstrated that colloidal Au_{198}, about 30 mc. injected into the parametria, can be picked up by the lymphatics and held in the tributary nodes in sufficient quantity to give a cancericidal dose there. The question that experience has to answer is whether the infiltration of the node by cancer may not frequently block off the lymphatic flow, so that the gold avoids exactly those nodes which need it.

Different colloids have different adaptabilities for being picked up and different organ spicificities in settling out. Silver has no very satisfactory radioactive isotope, but colloidal Au_{198} can be "plated" with colloidal stable silver, giving it the biochemistry of silver and the radiophysics of gold. These are small-particle colloids.

A useful colloid can be made of radioactive chromic phosphate (P_{32}), by fusing it and grinding in a ball mill, for hours or days depending on whether particles larger or smaller than a micron are desired. P_{32} is desirable for its energetic beta ray without any gamma ray. This makes it easier to handle than Au_{198}, which latter presents bothersome problems in radiation protection when handled in hundred millicurie quantities.

Many experimental therapeutic uses of radioactive isotopes are being reported. I don't know which ones to mention, being as yet unable to prognosticate their future usefulness. Radioactive beads of strontium or yttrium have been made for interstitial placement. Radioactive bromine has been used in solution to fill a bag in the bladder for treatment of infiltrating cancer. Colloidal radioactive zinc and manganese have been tried for their predilection for lungs and pancreas. All so far without making their way into clinical practice.

Radium is a radioactive isotope, too, or rather a whole radioactive chain of isotopes including Radium A to F. Internal medicinal use of radium has been given up long since, except by quacks. A few microcuries of radium in your bones will kill you after some years. Plutonium is about the only isotope more lethal in such tiny amounts. Radium has achieved an important place in therapy, especially of cancer, for external and interstitial application. It has been said, however, that it is a poor choice. We used it because we had it. Now we have many to choose from.

Cobalt$_{60}$, made by irradiating Co$_{59}$ with neutrons in the pile, is much less costly than radium, so that one can afford to keep on hand a veriety of sources, large and small. Its half-life is over five years, so that one's investment does not rapidly evaporate. Instead of the 12 assorted gamma rays of Ra and her daughters, it has two only, quite similar, at more than a megavolt. The half value layer for these is 11 mm. of lead, which makes protection still inconveniently heavy. Considering everything, Co$_{60}$ is the stuff for interstitial irradiation with needles.

For "gold seeds" that are to be left in place, we are likely to see radon replaced by gold. Au$_{198}$ wire in Au$_{197}$ tubing can be cut into tiny "seeds" and used just as we have long used radon. Its half-life, 2½ days is only a little shorter, and its beta rays are well stopped by the tubing, which is not true of radon.

Thin Co$_{60}$ or Au$_{198}$ wire can be threaded in short pieces into nylon tubing, making an elegant and flexible instrument for interstitial irradiation, removable.

The availability of Co$_{60}$ in large amount has made logical the construction of irradiators to take the place of an x-ray tube for treatment at distances of 50 cm. to 100 cm. Some of these use lead for shielding, some use some mercury, and some have tungsten close around the source. Anyhow they are heavy and require installation similar to a megavolt x-ray machine. The Co$_{60}$ gamma rays are equivalent to what one can get from 2½ million volts on an x-ray tube. To equal the quantity of radiation coming from megavolt x-ray machines one needs 1000 or 1500 curies of Co$_{60}$.

At the other extreme of quality is the strontium irradiator. About 20 millicuries of Sr$_{90}$ is held flat under a thin window of stainless steel and aluminum, about 8 mm. diameter. This is a very intense source of hard beta rays with no gammas. The penetration is only a few millimeters and it is proving advantageous for irradiation of superficial lesions on the eyeball, sparing the lens which lies too deeply for the rays to reach it.

As a substitute for the beta rays of the traditional radium plaque in dermatologic therapy, some workers are using P$_{32}$ solution dried on blotting paper. It is easier to confine the effect to the superficial layers than when using x-rays, because of the sharp limit to the beta ray penetration (8 mm). The major effect is in the top 3 mm., which spares the subcutaneous bloodvessels. The blotting paper is cut to the size and shape desired and then wet with the measured activity of P$_{32}$ solution and dried. The patient may wear the applicator home and himself remove it at the calculated hour; for the applicator is for him alone and has no intrinsic value.

All these external applications of rays from isotopes are probably not what you mean when you say "isotope therapy." Nevertheless they are therapeutic uses of isotopes, and moreover they make use of the art and intuitions acquired from several decades of clinical use of radium and x-ray. I felt obligated to cite them, especially since the internal therapeutic uses do not stack up to a very impressive total of accomplishments.

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A Review of Breast Lesions

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SPECIFIC DIAGNOSIS of breast lesions is important first to insure that the patient with a carcinoma receives adequate treatment and second that the patient with a benign lesion be spared unnecessary surgery. With this precept in mind an analysis of breast specimens of all patients studied pathologically in the laboratory of Mercy Hospital-Street Clinic during the past five years has been attempted. This includes all breast biopsy specimens from the surgical services of our own hospital and also those referred from other clinics, hospitals, and private physicians on a consultation basis from April 1, 1949 to March 31, 1954. During this time breast tissue of 1285 patients has been examined grossly and microscopically. Of this number chronic cystic mastitis was diagnosed 578 times, fibroadenoma 298, adenocarcinoma 235, lipoma 56, gynecomastia 35, epidermoid cyst 23, abscess and periductal and plasma cell mastitis 25, intraductal papilloma 14, fibrosing adenomatosis 9, fat necrosis 3, galactocele 3, and mammary hypertrophy, rhabdomyoma, leiomyoma, myoblastoma, tuberculosis and lymphosarcoma, 1 each.

In all instances an attempt was made to obtain such pertinent information as age, sex, color, presenting symptom, duration of symptoms, marital status, number of pregnancies and lactations, history of other disorders, such as menstrual or other abnormalities, as well as any other information that might be related to the case in question. Generally this pertinent information was readily available although in some instances, particularly in the consultation cases, it was difficult or impossible to obtain all this detailed information, so all statements made in the ensuing discussion may not be 100 per cent factual although they do certainly represent the prevalent trend in all series of each type of breast lesion under consideration.

Malignant lesions of the breast were diagnosed in 236 patients. Two hundred and thirty-five had adenocarcinoma of one form or another and one patient had lymphosarcoma. The patient with lymphosarcoma had other visceral lesions of this disease. The ages of patients with cancer ranged from 21-91 years with the average being 51.4. Figure 1 shows the age distribution of this group of patients. Approximately two-thirds of the patients in this group are married and the majority of these had one or more pregnancies. Previous lactational disturbances were noted in relatively few of the histories of these patients. The discovery of a lump in the breast is the usual reason for the patient seeking medical consultation, although notations of nipple discharge or bleeding were made in 27 instances. Breast pain or a painful lump occurred only 12 times, which is infrequently enough to deserve emphasis as a relatively negative symptom in this disease category. Several small breast cancers were discovered by physicians in the course of routine medical check-ups.

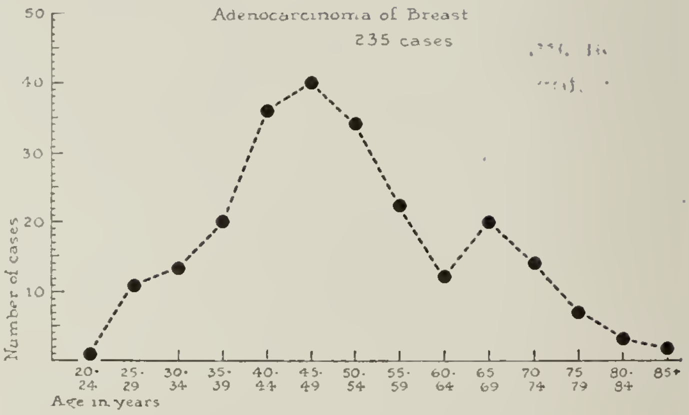

CHART 1

These tumors, when seen in the laboratory, ranged from 6 mm. to 17.5 cm. in diameter. Most of the carcinomas were of duct or lobular origin. There was one instance of sweat or apocrine gland cancer and three patients had Paget's disease associated with underlying duct or comedocarcinoma. Two patients had large metastatic axillary lymph nodes and so-called "occult carcinoma" of the breast in which it was impossible to demonstrate the primary lesion despite exhaustive gross examination in each case.

The statistical analysis of axillary node metastasis in the entire series is not possible because in some instances, although the primary tumor was submitted for examination and radical operation was later performed, the complete specimen was not submitted for study. Of the 235 instances in which carcinoma was diagnosed, 181 had the entire breast, underlying pectoral muscle and axillary tissue submitted and metastatic carcinoma was found in the lymph nodes of 92 of these patients.

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*Presented before the Section on Surgery at the eighty-sixth annual session of the Mississippi State Medical Association, Jackson, May 11-13, 1954.

It is interesting to note that in at least 20 of these 92 patients who had axillary metastasis no clinically palpable masses were found in the axilla preoperatively. All tumors were graded according to Broders' method and the higher grades three and four were markedly predominate, making up 196 of the 235 cases. Grade one carcinoma was found in only eight patients and grade two in 34.

Microscopic changes characteristic of chronic cystic mastitis were found in at least one-half of the breasts with malignant tumors and one small papillary tumor had an appearance not unlike an intraductal papilloma despite the fact that microscopic study revealed the malignant character of the lesion as well as metastasis to axillary lymph nodes.

The term chronic cystic mastitis as used in this review as well as rather generally throughout the country includes the groups of mammary dysplasias variously known as chronic mastitis, mazoplasia, cystic disease, adenosis, fibrocystic disease, Schimmelbusch's disease, fibroadenomatosis, adenocystic disease, epithelial neoplasia, etc. This diagnosis was made in 578 of the 1285 patients. The ages of these patients ranged from 12-75 years with the average being 38. Chart 2 illustrates the age incidence. Approximately 70 per cent of these patients were married and of this group about 30 per cent had no children. Pain, tenderness, lump and nipple discharge are the complaints that bring most of these patients to the physician. Between 15-20 per cent have symptomatology referable to both breasts. In some instances the lumps were of short duration and several patients stated that they appeared and spontaneously disappeared. A significant number of these patients had symptoms extending over long periods of time ranging from 1-20 years.

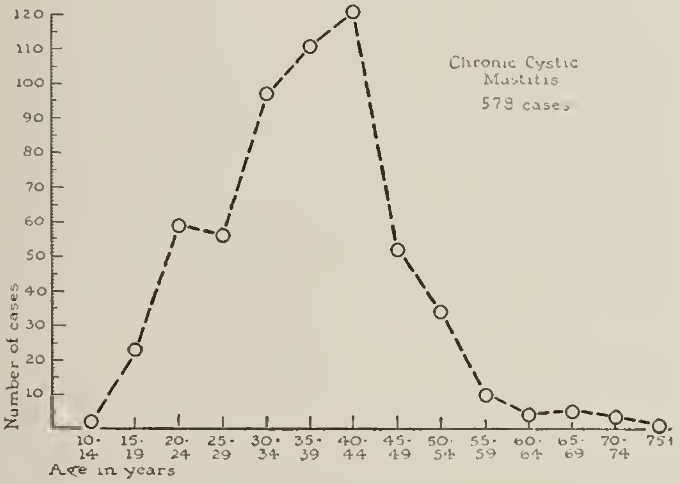

CHART 2

Gross pathological examination of these operative specimens revealed solitary or multiple cysts in dense fibrous stroma. Microscopic examination generally shows dilated and cystic ducts and acini, and an increase in periductal and perilobular stroma. It is not unusual to see some epithelial proliferation and hyperplasia and about 20 per cent show intraductal adenomas and papillomas and lobular "epithelial spilling" to such an extent the lesion is classified as an adenosis. It is this type of chronic cystic mastitis with epithelial hyperplasia which is seen not infrequently in association with malignancy.

This present review series includes nine patients with fibrosing adenomatosis or sometimes called "sclerosing adenosis" which should properly have been included with the group of cystic diseases, because it represents a highly proliferative phase of this lesion. Special mention is made of this condition because it gives pathologists the greatest difficulty at frozen section. The marked epithelial proliferation may simulate invasive cancer. The ages of the nine patients in this group ranged from 23-50 years and the masses occurred in the upper and outer quadrants of the breasts in eight patients. Its age incidence, location and gross and microscopic appearance cause it to be readily confused with cancer and for that reason its proper diagnosis is essential.

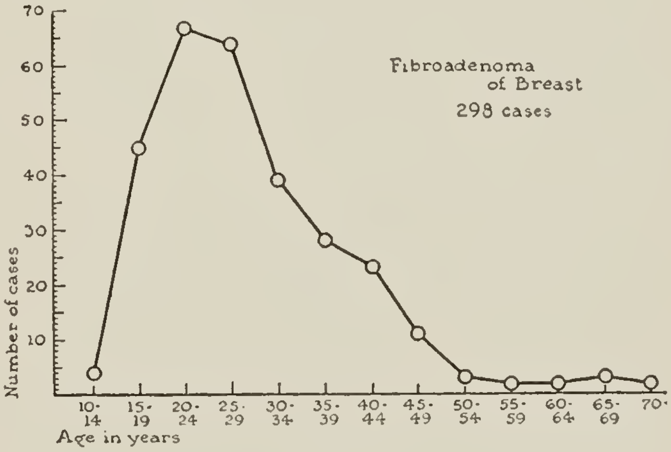

CHART 3

Two hundred and ninety-eight patients of our series had fibroadenomata. The ages of these patients range from 14-70 years with the average being 28. These tumors occur most often in the twenties, as illustrated by Chart 3. They almost never occur before puberty and rather infrequently after the menopause. In practically all patients the discovery of a lump in the breast was the first symptom of onset. Almost 15 per cent stated that there was some pain and tenderness associated with the lump. These tumors increase in size during pregnancy. Seventeen patients in this series were pregnant at the time the fibroadenomata were removed from the breast. Forty-seven of this series had multiple tumors in one breast and 18 had bilateral fibroadenomata. These tumors are generally well circumscribed or encapsulated.

Microscopically there is some variability in the pattern of these tumors but generally there is an admixture of overgrown glandular and fibrous connective tissue. There are some who feel that fibroadenoma of the breast is not a true neoplastic process but rather an extremely localized counterpart of chronic cystic mastitis. Although fibroadenomas may infrequently undergo malignant change, usually fibrosarcomatous transformation, there was no evidence of this in our group of patients.

Intraductal papillomata were found in 14 patients ranging from 17-66 years of age. Nipple discharge, which was bloody in eight cases, was the symptom first noted by these patients. These papillomata were multiple in two cases.

There were 25 instances of breast abscess with periductal mastitis and in two of these the larger number of plasma cells indicated the probability of a plasma cell mastitis. The ages ranged from 16-49 years and the two patients with plasma cell mastitis were 34 and 39 years respectively. Approximately one half of the abscesses formed two to six months following childbirth. There was marked induration and edema in the tissues of the two patients with plasma cell mastitis and clinically the differentiation from malignancy was impossible.

Of the remaining miscellaneous group brief mention will be made of several categories. Fifty-six of the 1285 patients had lipomas. Generally these were soft and usually superficial tumors ranging from 2-12 cm. in diameter.

Twenty-three patients had epidermoid cysts of the breasts. They occurred from the age of 6 to 68. Most of these cysts were superficial and diagnosis was simple. However, about 10 per cent of these lie more deeply in the breast and may be infected or perforated. This complication may confuse the clinical picture so that malignancy is suspected.

Thirty-five male patients ranging from 12-79 years of age had gynecomastia. In six instances the breast enlargement was bilateral. In one patient ecoptic breast tissue from the lower anterior abdominal wall formed a mass 9x6x2.5 cm. which showed microscopically the typical hyperplastic duct epithelium surrounded by proliferating fibrous mammary stroma. This histologic picture in the male breast is indistinguishable from that occurring in the female breast at puberty.

Fat necrosis occurred in the breasts of three patients and there was a definite history of trauma to the breasts in two of these patients.

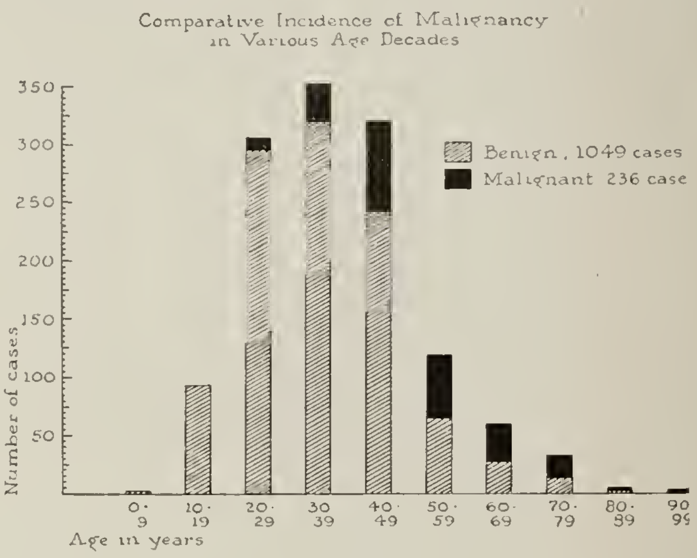

Chart 4

One patient, age 44, had very marked enlargement of both breasts so that they actually interfered with her usual activities. These breasts were amputated and together weighed fourteen and one-half pounds.

CONCLUSION

This review indicates that 18.3 per cent of the entire series of patients had malignant disease of the breast. Somewhat less than one in every five breast masses was malignant. This ratio increased in the lower decades of life but reached equality in the sixth decade, as is illustrated by Chart 4. A composite age incidence rate of chronic cystic mastitis, fibroadenoma and carcinoma as illustrated in Chart 5 reveals that fibroadenomata are found most often between 20-30 years of age, chronic cystic mastitis between 30-45 and carcinoma most frequently after 40 years of age. The significant

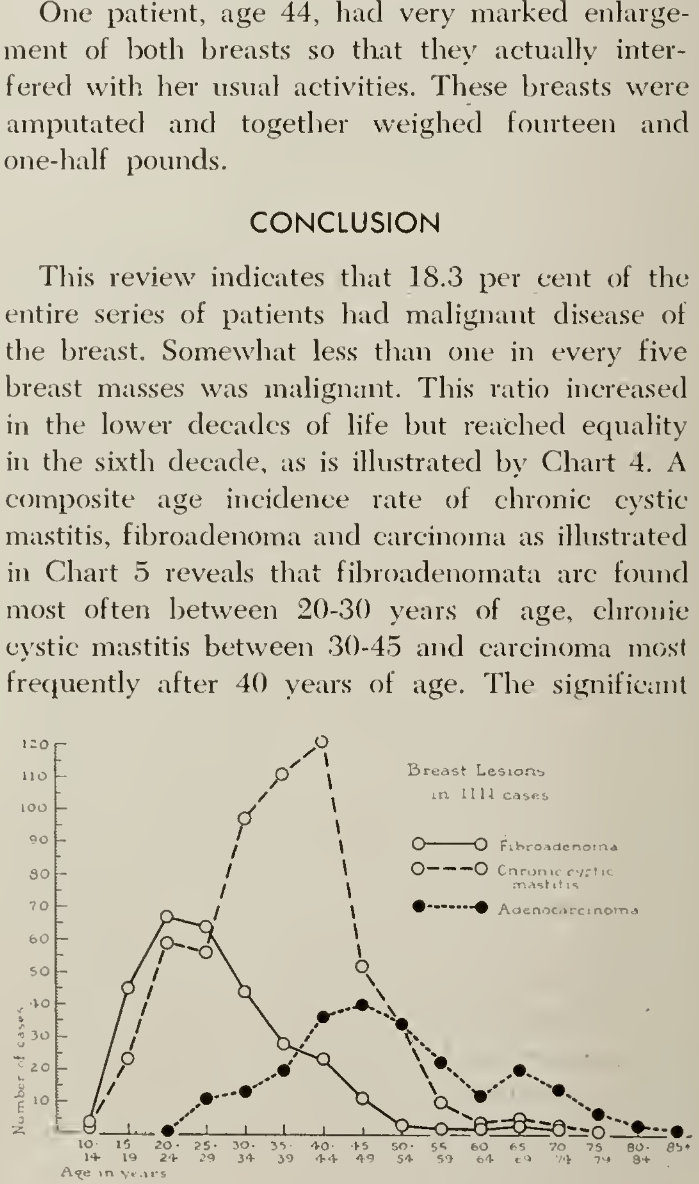

Chart 5

number of malignancies, however, in the younger age groups, twenties and thirties, should make us all anticipate the possibility of malignancy before the so-called cancer age. In the post-menopausal age group our findings tend to show that about two in every three breast masses will be malignant.

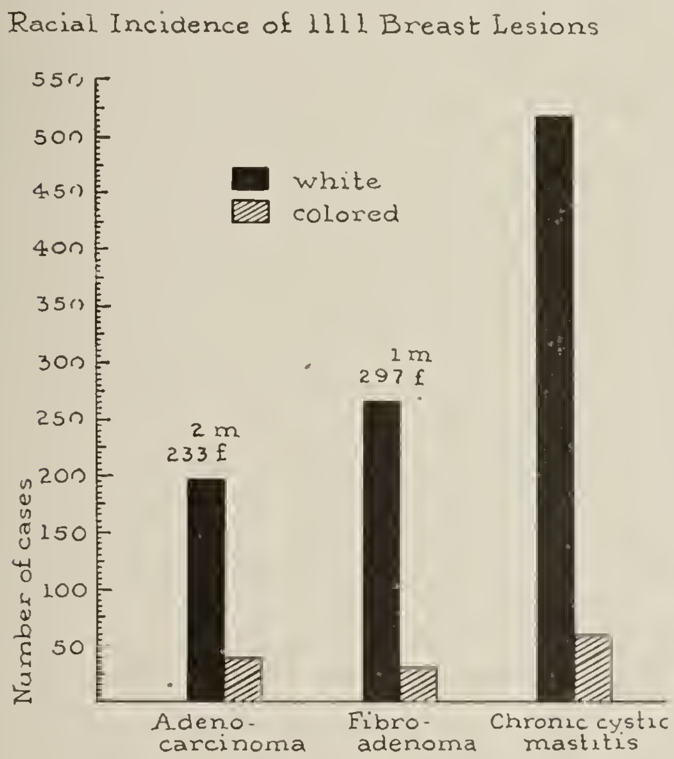

CHART 6

Chart 6 shows the racial incidence of the three diseases in these races.

The rather common microscopic finding of cystic disease associated with carcinoma in over 50 per cent of the malignant lesions and the extensive epithelial hyperplasia or adenosis in 20 per cent of the patients with chronic cystic mastitis and in all cases of fibrosing adenomatosis tends to indicate more than a casual relationship between chronic cystic mastitis and carcinoma. This relationship of benign lesions of the breast to the subsequent development of mammary carcinoma has been reviewed by Warren, Claggett, *et al*, and others who conclude that the incidence of carcinoma of the breast is greater in women with preexisting chronic cystic mastitis than in women with no previous breast disease.

In retrospect it seems that the pathologist or the surgeon well trained in pathology should be able to make the correct gross diagnosis of the biopsied breast in approximately 80-90 per cent of cases. The use of rapid frozen section should improve the pathologist's diagnostic ability to about 95 per cent and it is generally conceded that in from 2-5 per cent of all cases correct diagnosis is possible only by study of permanent frozen or paraffin sections of the tumor. In such cases it is considered prudent, and not detrimental to the patient's welfare, to close the biopsy wound and wait for the pathological report on the permanent section.

SUMMARY

A review of a series of breast biopsies has been presented with emphasis on the following points:

1. Differential diagnosis and relative frequency of malignancy.
2. Apparent relationship and association of some benign lesions to malignant lesions of the breast.
3. Certain problems in pathologic diagnosis of breast lesions.
4. A hope that this review will stress the importance of following closely the patients in the middle age group with benign cystic disease of the breast in order to observe recurrence of a benign condition or possible development of a malignancy.

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The Use of Cortisone in Gynecology

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THE PAUCITY of probable indications for the systemic use of cortisone in gynecology is far outnumbered by the voluminous reports appearing in the literature since 1950 when Wilkins[1] and his associates first reported the dramatic fall of the urinary 17-ketosteroids in a case of congenital adrenal hyperplasia who was treated with cortisone. Two years later Wilkins[2],[3],[4] summarized his results, reporting 19 cases, twelve females and seven males, who ranged in age from two and one-half months to eighteen and one-half years and who were treated continuously with cortisone for a duration of five months to twenty-eight months. In all cases the increased urinary 17-ketosteroids, indicating excessive androgenic stimulation, returned to normal or near normal levels and the virilization, characteristically present in congenital adrenal hyperplasia, was checked or decreased. With proper doses of cortisone in children somatic growth and sexual development proceeded normally. In some adolescent females ovulatory menses occurred for the first time. Mason and Morris[6], Kupperman and associates[7],[8] and Jailer *et al.*[9],[10] have reported similar results with cortisone.

Congenital adrenal hyperplasia in the female is called female pseudohermaphroditism, and in the male, macrogenitosomia praecox. This condition should be suspected in the female at birth as there is a phallus and usually a persistent urogenital sinus. The diagnosis, however, cannot be made on the appearance of the external genitalia, as the same anomalies may be present in genetic intersexes who have ovatestes or one ovary and one testis. A determination of the 17-ketosteroids will invariably show high levels in adrenal hyperplasia and normal levels in the true hermaphrodite, who usually does not show either androgenic or estrogenic manifestations until the age of puberty. At times exploratory laparotomy with biopsy of the gonads is indicated. In congenital adrenal hyperplasia the high levels of androgens with continuous protein anabolism results in accelerated growth, excessive muscular development and early epiphyseal ossification in children. In adults and children there is excessive growth of sexual hair and progressive virilization. At puberty there is often amenorrhea and failure of normal feminization. Other clinical manifestations of adrenal dysfunction have been reported. Most cases according to Wilkins[4] show no electrolyte imbalance, but in a few instances there is a tendency toward sodium loss and potassium retention which in early life may lead to death from dehydration and circulatory collapse or cardiac arrest. Severe hypertension may be found without electrolyte imbalance and hypoglycemia has been noted in a few instances. These Addisonian-like characteristics have been reported more often in the infant with the congenital form, which is always due to hyperplasia of the adrenal cortex resulting probably from a defect in the gland which occurs between the third to fifth month of fetal life in utero if there is a persistent urogenital sinus.

This general description of congenital adrenal hyperplasia has been given to emphasize that the investigators, who have studied the results of cortisone therapy for a relatively short period of time, have indicated that with continuous maintenance doses of cortisone started prior to the development of irreversible changes, abnormal somatic and sexual alterations may be arrested or prevented, allowing normal growth and sexual development to proceed. Of course, plastic surgery on the anomalies of the external genitalia is required in the female. They stress, however, that a great deal more work is required to evaluate adequately such therapy.

Cortisone has been found helpful in the differential diagnosis of the adrenogenital syndrome due to either adrenal hyperplasia or adrenal adenomia or carcinoma. Patients with an adrenal tumor given cortisone for a short period of time usually show no fall in the elevated 17-ketosteroids; there may be a rise. Jailer and his associates[10] in evaluating the so-called "Cortisone Test" state that in no instance was a fall in urinary 17-ketosteroids obtained in patients with functioning adrenal neoplasms. A significant fall in 17-ketosteroids was obtained in all patients with adrenal virilism secondary to adrenal hyperplasia and in most instances of Cushing's syndrome due to this dysfunction.

As congenital adrenal hyperplasia is associated with a severe form of follicular phase defect of the ovary and the use of cortisone in this condition had been reported by Wilkins to induce ovulatory menses in some cases, Jones and her co-workers[11], [12] studied the effect of cortisone in other types of follicular phase defects, mainly in adult women. They have shown in some cases that ovarian dysfunction of the follicular or proliferative phase type associated with adrenal dysfunction may be corrected by low doses of cortisone. Some women with amenorrhea or oligomenorrhea, hirsutism, acne and slightly elevated 17-ketosteroids with normal development of pelvic organs respond to low dosage cortisone therapy with the occurrence of ovulatory menses and occasionally pregnancy. This form of adrenal dysfunction is usually designated the acquired or postnatal form of adrenal hyperplasia.

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A second form of follicular phase defect studied by this group was the Stein-Leventhal syndrome or polycystic ovaries. This syndrome has many features comparable to those of congenital adrenal hyperplasia and according to Greenblatt[13] at the present cannot be distinguished from postnatal adrenal hyperplasia. However, in this condition there is no consistent elevation of the 17-ketosteroid excretions. Jones treated nine patients with low dosage cortisone therapy, two described as postoperative failures became pregnant, three had ovulatory menses, but four showed no improvement. She concludes that some patients with the Stein-Leventhal syndrome may respond to cortisone.

Kupperman and Studdiford[7], Bastenie[11] and Greenblatt[13] in reporting similar results in the amenorrhagic or oligomenorrhagic, hirsute female stress that cortisone therapy has proved to be successful only in those cases in which an increase 17-ketosteroid excretion can be demonstrated. Some may respond by cyclic ovulatory menses and ultimate conception, others by increased number of menstrual periods, many of which may not be ovulatory, while other patients may show no improvement. There is much to be discovered yet about the pituitary-ovarian-adrenal axis. In any event, the evidence now accumulating offers some hope of satisfactory treatment of a group of patients with whom there has been no success in the past.

The amenorrhea or oligomenorrhea, hirsutism and acne which may occur in Cushing's disease is not responsive to cortisone therapy, in fact it is well known these symptoms may be produced by therapy with cortisone, a drug considered by many contraindicated in this condition. Not infrequently in the postnatal form of adrenal hyperplasia there are some clinical manifestations suggesting Cushing's disease; an example would be decreased glucose tolerance or the lethargy and muscular weakness resulting from increased gluconeogenesis. Apparently, the mechanism of Cushing's disease due to hyperplasia of the adrenal cortex differs from the hypercorticolism of congenital or acquired adrenal hyperplasia. Forbes, Griswold, and Albright[15] believe that the manifestations of this syndrome are chiefly due to an over production by the adrenal cortex of the gluconeogenic hormone. By biologic assay the corticosteroids were lower than normal in the adrenogenital syndrome but well above normal in all active cases of Cushing's syndrome.

Formerly, the diagnosis and treatment of functional amenorrhea or oligomenorrhea was based on studies of the pituitary-ovarian-end organ axis[11] with dysfunction of the adrenals as possibly secondary causative factors. Bongiovanni *et al.*[17], Jones *et al.*[11], Kelly *et al.*[18] and Wilkins feel that the primary pathology of the adrenogenital syndrome lies in the adrenal cortex and is probably a defect in biosynthesis. The biochemical alteration is concerned with a lack in the production of either 17-hydroxycortieosterone or cortisone. The blockage, due probably to absence of some enzymatic factor seems to result in the accumulation of some type of hormone or metabolite which is incapable of inhibiting pituitary ACTH release. The increase in ACTH secretion produces an over stimulation of the adrenal cortex, especially of the reticular zone, and the over production of androgenic hormones and probably estrogens. When exogenous cortisone is supplied, the secretion of ACTH is suppressed and excessive androgenic activity declines.

According to Wilkins and his associates[3] the amenorrhea or oligomenorrhea results from suppression of the pituitary gonadotropins by the excessive androgens from the adrenals. With cortisone therapy in adrenogenital syndrome depressing ACTH activity on the adrenal cortex, and a fall in the androgens and adrenal estrogens, the gonadotropins are released for ovarian stimulation. They have demonstrated the absence of urinary gonadotropins before treatment and their appearance after treatment[5]. Greenblatt[13] feels that cortisone produces its effect not only by depressing adrenocorticotropin but by so modifying pituitary activity as to permit a more orderly release of pituitary gonadotropins.

SUMMARY

Although cortisone as a therapeutic and diagnostic agent in gynecology appears to have a very limited scope, the endocrinological and clinical results from reports of its use are revealing new concepts concerning the relationships of the ductless glands and their secretions. The diagnosis of congenital adrenal hyperplasia should be made in infancy or early childhood for it seems evident that exogenous cortisone may replace a deficiency of the adrenals. A few infertile or sterile women with irregular menses and evidence of adrenal dysfunction may respond to low doses of cortisone.

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Dr. Wm. B. Wiener (Jackson)—I want to congratulate Dr. Lockard on her excellent paper. The time element has prevented her from elaboration on the subject. However, if this will remind all of us that there is an entity, congenital adrenal hyperplasia and that if these individuals are diagnosed early and treated with adequate doses of cortisone, normal growth and sexual development will occur, the paper was well worth while.

In regards to the Stein-Leventhal syndrome, Greenblatt found that cortisone helped patients who did not receive much benefit from surgery. And on the other hand some of those patients who did not respond to cortisone therapy were helped by resection of the ovaries. He feels that the excess androgen produced in these individuals could come from either the polycystic ovaries or from the adrenal cortex or both. If this is the case it would explain why surgery is beneficial to some, cortisone to others, and combined therapy will help a third group.

Hirsutism *per se* is not too abnormal but a woman with hirsutism and amenorrhea or oligomenorrhea is. Such a person should be thoroughly worked up with physical and chemical examinations. Those who have an elevated 17-ketosteroid determination should receive the benefit of trial treatment with cortisone.

In order to obtain 17-ketosteroid determinations, the total twenty-four-hour urine specimen to which 5 cc. of toludine is added for preservation must be sent to a laboratory equipped for this work. Most of the specimens in town are sent to the Bio-science Laboratory in Beverly Hills, California.

I would like to add that before starting a patient on cortisone therapy, one should be familiar with the complications that might occur and the methods for detecting and preventing them. It is known that cortisone administration may cause atrophy and suppression of the function of the adrenal cortex and that these effects may persist for an appreciable time after discontinuing cortisone. With this in mind, Salassa and co-workers at the Mayo Clinic think it is advisable to consider carefully the surgical treatment of patients who have had previous treatment with cortisone. In fact, they advise that patients in whom cortisone therapy has been stopped not undergo surgical procedures in less than one to one and a half years after cessation of the cortisone. That is, unless the cortisone is started again prior to surgery, and then those patients should have close observation postoperatively, especially the first twenty-four hours.

Dr. W. L. Stallworth (Columbus)—The summary and conclusions Dr. Lockard has evolved after an extensive and critical review of the literature on the subject are direct and to the point.

There will be further studies in this field of endocrinology that will in all probability add greatly to our knowledge of glandular dysfunction and its intelligent treatment.

Essays such as this are extremely helpful. Not all of us have the time or patience to read and digest articles published on a particular subject and then to summarize, accept or reject the conclusions and findings of the whole. For this one reason if no other we should appreciate the efforts of one who has diligently done this.

The two salient points brought out by Dr. Lockard are:

1) the use of cortisone in the differential diagnosis of the adrenogenital syndrome due to adrenal hyperplasia, adrenal adenoma or carcinoma, and
2) secondly, the accumulating evidence that cortisone may be of help in cases of infertility in which an increase in 17-ketosteroids can be demonstrated.

The latter may add greatly to our treatment of sterility in the female.

I must admit that my use of cortisone has been largely limited to its topical application in cases of pruritus ani and vulvae. It has been very helpful in senile vaginitis. In such conditions caused by an irritating leukorrhea, such as seen in Trichomonas vaginitis, moniliasis, or as the result of antibiotic medication, it has been, to say the least, disappointing, in fact valueless unless specific treatment is used.

If I may digress for a moment from the gynecological aspect, I would like to mention cortisone therapy in Rh incompatibilities. In the March 13 issue of the *Journal* of the American Medical Association there is an article by Dr. O. B. Hunter of Washington, D. C., in which he states that he used the normal rise of pregnanediol and 17-ketosteroids in the urine during pregnancy as a means of following the course of the fetus of the Rh-negative mother with a high antibody titer. He gave 25 mg. of cortisone every 6 hours, to be increased if the hormone level did not rise. Exchange transfusions were apparently given to the infants in all cases. He states that this therapy with exchange transfusions reduced the mortality rate of babies born alive from 10 per cent to 3 per cent; the incidence of stillbirths from 18 per cent to 5 per cent. From my own observations and that of others, notably Dr. Wiener of Brooklyn, N. Y., I believe that the fallacious conclusions of this author are based on an incorrect premise. The author states, "It is important to observe that prior to the use of cortisone, we have never seen an Rh positive child born alive of a mother who has had a previous stillbirth."

The Rh titer does not rise progressively with each succeeding pregnancy since, unless there is a leakage of Rh positive blood into the maternal blood, the tendency is for the titer to decline rather rapidly after delivery. Thus a live baby may follow a stillbirth. This variation must be taken into consideration when evaluating treatment given to the mother during pregnancy. It is common knowledge that even in like sexed twins the manifestations may be different.

It is very doubtful if cortisone therapy during pregnancy prevents erythroblastosis, nor does it ameliorate the disease.

In a recent report DeCosta and others reported 10 cases of sensitized pregnant women treated with cortisone with only a 25 per cent fetal salvage.

My only reason for mentioning this aspect of the use of cortisone is the fact that this treatment apparently has no beneficial effects and also subjects the mother and baby to additional hazard.

Since reading Hunter's original paper, two of my colleagues and I have administered cortisone to four patients with a high antibody titer and blocking antibodies present. The results were two macerated fetuses delivered at approximately 7 and 8 months, and two deliveries at term, both given exchange transfusions, with survival of the babies. Cortisone therapy was instituted at about the twenty-fourth week of gestation in each of these cases.

A Simple, Effective Routine for Management of Acne Vulgaris

JOHN M. KNOX, M.D.
Oklahoma City, Oklahoma

JAMES W. BURKS, M.D.†
New Orleans, La.

Acne vulgaris is not merely a cosmetic defect that will be outgrown; it constitutes an important clinical problem whose significance is reflected in many ways. Disability payments are now being made to personnel who acquired severe acne vulgaris during military service or who experienced aggravation of pre-existing disease. Applicants for vocational positions of highest moral, mental and physical caliber are frequently rejected because of extremely disfiguring acne. Severe discomfort from tender or painful lesions may actually become incapacitating to various degrees, and psychiatric manifestations of self-consciousness, withdrawal, inferiority, hostility, and emotional instability, commonly encountered in these individuals, often result in impaired efficiency in their endeavors.

Acne vulgaris is known to be precipitated or aggravated by increased mental or physical stress, by change of climate, and by eating foods rich in fat. Approximately 80 per cent of our population is affected at puberty[1], and an undetermined, but high, percentage of young men and women already have or will acquire severe acne by the age of twenty years. We, as physicians, have a moral obligation to give these patients the best medical care that science can offer.

Although many theories have been advanced concerning the etiology of acne, no completely satisfactory explanation has been established. At present the most plausible theory is that acne vulgaris is produced by an imbalanced secretion of sex hormones [2, 3, 4]. Sutton[5] contends that acne is a pustular lipoidosis resulting from faulty lipoid metabolism. The presence of the acne bacillus of Sabouraud and certain strains of staphylococcus around acne lesions has led to considerable speculation and study. Stokes and Sternberg[6] have presented imposing evidence that sensitivity to certain foods, yeast, bacteria and seborrheic scales can produce acne. Emotional instability and immaturity have been postulated to be the cause rather than the result of acne vulgaris. Various other less popular hypotheses have also been presented. Practically all observers agree that with acne there is hyperactivity of the sebaceous glands.

Histologically, acne vulgaris represents a perifolliculitis occurring around a comedo. Comedones are composed of sebum and keratotic as well as parakeratotic cells and are located in the pilosebaceous follicles. In the early acne lesion, there is an infiltrate of lymphocytes and plasma cells around a comedo-filled pilosebaceous follicle, together with atrophy and fragmentation of sebaceous glands; the latter changes are probably due to the stasis and pressure caused by the comedo within the follicle. The fragmentation of sebaceous glands, in turn, produces the inflammatory reaction. Occasionally, foreign body giant cells are found in the infiltrate, but there is no evidence of tuberculoid reaction. At a later stage, histiocytes and fibroblasts appear, and fibrosis occurs. In lesions in which secondary bacterial infection is present, disintegration of the follicle and abscess formation ensue, and foreign body giant cells are frequently found around the remnants of the follicle.[7]

TREATMENT

Whereas there is no immediately curative treatment for acne, definitely beneficial therapy can be given with even limited facilities. To this end, it is essential for the physician to have a basic understanding of the disease and fundamental knowledge of its treatment.

A satisfactory routine for treating acne may be outlined as follows:

1. The face should be washed three times a day with an oil-removing soap: Basis Sulfur Soap (Duke Laboratories), Acne Aid Detergent Soap (Stiefel), pHisoderm for oily skin (Winthrop Stearns), or Lava Soap (Procter and Gamble).

2. After the face is cleaned, a lotion should be applied, consisting of resorcin, 2-5 per cent, and salicylic acid, 1-3 per cent, in a 50-70 per cent solution of alcohol. Some of the more popular and efficacious proprietary topical agents are sulforcin® lotion and base (Texas Pharmaceutical Co.),

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†Assistant Professor of Clinical Medicine, (Dermatology) Tulane University School of Medicine, New Orleans, La.

intraderm sulfur® (Wallace Laboratories), acnomel® (Smith, Kline and French Laboratories) and surco lotion (Alma Laboratories).

3. Freshly prepared lotio alba should be applied at bedtime in normal, one-half, or double strength, as indicated.

4. Foods rich in fat, i. e., chocolate, nuts, gravy, mayonnaise, fried foods, pork, and dairy products, should be avoided.

5. Tampering with the lesions should be prohibited; acne surgery (opening pustules, expressing comedones, and draining cysts) should be performed by the physician when necessary.

6. Weekly injections of 2 cc. crude liver extract are often beneficial. Injections of kutapressin® (Kremers-Urban Co.), 2 cc. three times a week, have also demonstrated an inhibitory effect on acne [8,9,10]).

7. Vitamin A, thyroid extract, antibiotics, and estrogenic substances may be prescribed when indicated.

Vitamin A, 50,000 units three times a day, is of value chiefly when comedo formation is predominant or when follicular plugging or other signs of vitamin A deficiency are present. Thyroid extract, 1 to 2 gr. daily, is indicated when the basal metabolic rate is in the low range of normal or below normal. Penicillin, sulfonamides, and the broad spectrum antibiotic agents may prove effective in pustular acne and are also indicated in the presence of pyoderma or folliculitis; they should be given systemically in the usual therapeutic doses and over a considerable period of time. Despite some opposition to the administration of estrogenic substances to male patients, a trial course seems desirable in resisting cases. Stilbestrol, 0.25 to 0.5 mg. daily is recommended. It should be noted that even with extremely small doses of estrogen gynecomastia occasionally occurs.

When available, ultraviolet light, in suberythema doses daily or weekly, proves a useful adjunct to treatment. Although roentgen ray therapy is still considered by many to be most dependable for curing acne[11], it should only be administered by a trained dermatologist who is aware of the necessary precautions to be taken. Since acne can be treated successfully in most instances without roentgen rays, the unavailability of this agent is not of maximal importance.

COMMENT

This paper has been presented[1] to point out the need for conscientious treatment of acne vulgaris and[2] to emphasize that any physician can competently treat this disease. The simple routine outlined in the paragraphs represents a time-honored and sound therapeutic approach which usually produces gratifying results. There are, of course various other methods of attacking the disease, but no rapid or "miracle" cure exists.

SUMMARY

1. Acne vulgaris is an important clinical condition which warrants conscientious treatment.

2. A practical, effective regimen for treating this disease is presented.

3. Whereas no "miracle" cure is known today, beneficial therapy can be administered by any physician.

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Bonamine—A Notable Advance in the Therapy of Nausea and Vomiting of Pregnancy*

R. F. BASS, M.D.
Jackson, Miss.

This report presents details of a clinical trial of bonamine, a new antihistaminic compound,[1,2,3] in the treatment of 182 patients for relief of nausea and vomiting of pregnancy. The results, as will be seen, have demonstrated the following points of superiority of this treatment over those in previous use:

1. Bonamine gave greater relief to a higher percentage of patients.
2. The use of bonamine was attended with a far lower incidence of significant side effects.
3. The most striking advantage of bonamine was that the administration of an effective dose only once daily, at bedtime, gave 24-hour protection, thus obviating the inconvenience and distress of repeating doses during the day.

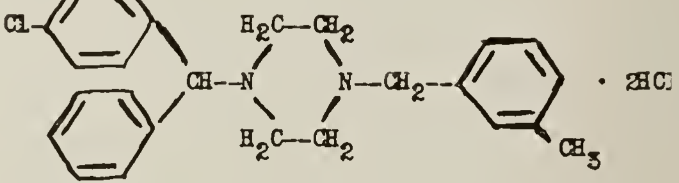
BACKGROUND

Nausea and vomiting occur in almost 80 per cent of all pregnancies. Nutritional and psychogenic elements are important etiologic factors, but endocrine changes must play a role. These symptoms usually appear at about the fifth or sixth week of pregnancy and last for from a few weeks to two or three months or longer. They vary in severity from simple "morning sickness" to pernicious vomiting which may have serious complications (notably hemorrhagic retinitis) or even end fatally (with widespread fatty degeneration of the liver.)

In treatment, the merit of several approaches has been established. Simple reassurance and the use of a sedative, such as phenobarbital, to allay anxiety and apprehension may be of value when the psychogenic component is prominent. A diet catering to the patient's own desires and providing frequent small feedings is often helpful. Pyridoxine (vitamin B_6) appears to afford relief in some cases, but the mechanism of its action has not been explained. If vomiting becomes severe, hospitalization to provide strict bed-rest and parenteral alimentation is usually necessary.

A fairly recent contribution to the therapy of this syndrome was the discovery that an antihistaminic compound, dimenhydrinate, known to be effective against motion sickness, was also of some value in nausea and vomiting of pregnancy. More recently an entirely new type of compound possessing antihistaminic properties has been found more effective against motion sickness. This compound is bonamine, which is designated chemically as p-chlorobenzhydryl-m-methylbenzylpiperazine dihydrochloride, and its notable feature is the fact that a single dose of 25 to 50 mg. provides 24-hour protection, thus obviating the inconvenience and distress of frequent dosing.[4,5,6] Because of these findings with respect to motion sickness, it was proposed to make a trial of bonamine in treating nausea and vomiting of pregnancy. The object of the present paper is to report such a study.

The structural formula here of bonamine is as follows:



From this formula it may be seen that bonamine differs from its nearest relatives among the antihistamines by having three, rather than two, benzylic rings in its structure.

Acute toxicity studies demonstrated, by LD$_{50}$ determinations in mice, that bonamine is considerably less toxic than antihistamines (including dimenhydrinate) in most frequent use clinically. Chronic toxicity studies carried out by daily administration of the compound to rats and dogs over periods of six months revealed no morbid changes. Moreover, the antihistaminic activity of bonamine—determined by the duration of effective protection of guinea pigs against intravenously injected or nebulized histamine—was found far superior to that of comparable doses of any other antihistamine in current use.[7]

DETAILS OF CLINICAL TRIAL

The patients included in the study were 182 women suffering from nausea and vomiting of pregnancy. Of these, 97 were gravida I, 49 gravida II, 19 gravida III, 9 gravida IV, 3 gravida VI, 1 gravida XI. Treatment with bonamine was started by the sixth week in 20 cases, during the seventh week in 27 cases, the eighth week in 26, the ninth week in 22, the tenth week in 17, the eleventh week in 12, the twelfth week in 11, and during the thirteenth to twenty-third weeks in 47.

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*Bonamine (brand of meclizine) for this study was kindly supplied by Dr. F. E. Bishop of Chas. Pfizer and Co., Inc., Brooklyn, N. Y.

The daily dose of bonamine, given at bedtime, was 25 mg. in 32 cases, 50 mg. in 149 cases, and in 1 case 75 mg. was found necessary for complete relief. The duration of treatment was two weeks in 162 of the 182 patients (90 per cent), but was only three days in 1, and one week in 5, and was three weeks in 1, four weeks in 10, six weeks in 1, and as long as three months in 1.

RESULTS

Of the 182 patients treated with bonamine for control of nausea and vomiting of pregnancy, 164 obtained excellent therapeutic results, 15 had fair results, and 3 poor results. (Results are designated as "excellent" when nausea and vomiting were completely relieved, as "fair" when vomiting was relieved but some nausea remained, and as "poor" when there was no apparent benefit.)

Thus, 98.5 per cent of the patients were benefited, with 90 per cent obtaining complete relief of symptoms.

EFFECTIVE OF SPECIAL NOTE.—Severe headache was relieved, in addition to nausea and vomiting, in a patient having this additional complaint. The most spectacular effect, however, was the prolonged duration of action of bonamine, which was such that the protection provided by a single daily dose at bedtime carried through the critical post-waking hours and apparently for a full 24-hour period. There was found to be no need for more than the single daily dose.

SIDE EFFECTS.—Occasional drowsiness—reported by 21 of the 182 patients—was the only side effect that occurred in the series. This effect was always quite mild, however, except in 2 cases in which discontinuation of the medication was necessary (less than 1 per cent of the total). No instances of drowsiness occurred in any of the 32 patients receiving 25 mg. doses of bonamine daily, and 7 patients with slight drowsiness were found to have this effect with the 50 mg. doses they required but not with 25 mg. doses.

SUMMARY AND CONCLUSIONS

A total of 182 women suffering from nausea and vomiting of pregnancy were treated, to provide symptomatic relief, with bonamine, a compound recently introduced into clinical practice because of its effectiveness against motion sickness. The drug was given in single daily doses of 25 or 50 mg. at bedtime. It was found that 98.5 per cent of the patients were significantly benefited by this treatment, whose duration was two weeks in most instances but up to three months in some, and that nearly all of these had completely relief of symptoms (only 8.5 per cent of those benefited had some nausea remaining after relief of vomiting).

Conclusions drawn from this study with respect to the advantages offered by bonamine in this indication have been stated in the opening of this report.

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Don't forget that the Mid-South Postgraduate Medical Assembly is on the way with a fine program for next February. It is the father of this type of postgraduate assembly and offers something good for every doctor. And everyone likes to go to Memphis. Better engage your room if you want to be at the headquarters hotel.

The Treatment of Middle Ear Infections*

S. G. MOUNGER, M. D.
Greenwood, Mississippi

THE TREATMENT of infections of the middle ear has undergone considerable change in recent years, as has the treatment of all other infections. With the advent of the chemotherapeutic and antibiotic agents there was a big shift towards conservatism and less radical surgery. This was reflected in middle ear infections, by the physician feeling that he could wait longer on myringotomy, hoping the antibiotic would abort the infection and that drainage would not be necessary. This has resulted in the very common error in therapy of failure to afford adequate drainage.

Inadequate or no draining combined with underdosage of antibiotics may afford a cessation of pain and a temporary suppression of the bacterial infection but will almost inevitably result in a recurrence.

Another danger is that of chronicity. When the drum is allowed to rupture spontaneously, the site of rupture is apt to be in the area of Shrapnell's membrane, and the result may be a chronic suppuration in the attic with its multitude of complications, with extension to the labyrinth, lateral sinus and meninges.

The treatment of the acute catarrhal otitis media consists first of prophylaxis—removal of hypertrophied adenoid growths, adequate treatment of upper respiratory infections, and instruction in correct nose-blowing.

Active treatment consists of external heat applied in any form. Warm ear drops are still relied upon by many, and seem to have some merit; analgesics are given as indicated. Antibiotic and chemotherapeutic agents are given at this stage. Rarely the drum may show bulging, in which case pressure should be relieved by incision, after which the incision is adequate and will not become blocked.

A few words about the technic of myringotomy. In children a general anesthetic may be preferable; usually a local anesthetic of equal parts of menthol, camphor and cocaine applied on a small tampon and allowed to stay in place against the drum for 20 or 30 minutes usually affords adequate anesthesia.

The ear canal is cleaned with alcohol. Adequate light is a necessity, so that the drum is well visualized. The knife is inserted in the posterior inferior quadrant and carried upward, caution being exercised not to let the knife enter too deeply.

A culture of the discharge should be taken to identify the organism so that the most effective antibiotic may be administered. A small wick of gauze may be left in place to aid drainage, but should be changed frequently to prevent the wick from becoming a plug and blocking the free flow of the purulent material from the middle ear.

One result of failing to open the drum may be the development of serous otitis media. Here we have a collection of serous, non-purulent exudate in the middle ear, caught between the swollen Eustachian tube and the intact drum membrane. If fluid is not evacuated, we may have adhesive changes resulting in a permanent conduction deafness.

The treatment of this condition should be nasal shrinkage with a vasoconstrictor, and inflation of the middle ear or catheterization of the Eustachian tube. Aspiration of the fluid with a small needle on a small syringe may result in improvement, but often we shall need myringotomy repeated as often as necessary to reestablish good hearing. If the fluid is very thick, it may not be easily aspirated.

Myringotomy is performed as often as is necessary to afford adequate drainage and to keep the adhesive changes due to organization of the fluid from occurring in the middle ear. It is wise to precede and follow the opening of the drum by inflation to expel fluid. Suction should be applied to the drum opening where there is a thick tenacious mucoid type of secretion.

If proper treatment is not instituted, the ultimate outcome will likely be a chronic purulent otitis media. The incidence of this disease is much greater than is commonly believed, as was revealed by the surprisingly high incidence found in inductees into the army during World War II.

The underlying cause of otorrhea is usually found in the nasopharynx; hence it is necessary that treatment be directed to this focus. Prevention and treatment of colds and adequate treatment of allergic conditions of the nose are indicated.

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*Presented at the sixty-first semi-annual meeting of the Delta Medical Society at Leland, Mississippi on April 14, 1954.

There are numerous treatments of the chronically infected ear, but one of the most successful is the so-called "dry treatment".

1. The canal and middle ear are cleansed as thoroughly as possible by the dry method (no irrigation is allowed.) Swabs or gentle suction only are used.

2. Complete drying of the canal with 95 per cent alcohol.

3. Removal of all excess granulation tissue.

4. Insufflation of boric acid iodine powder (Sulzberger) into the middle ear through the perforation with a Davidson insufflator or DeVilbiss powder bottle.

5. Treatments usually are given daily or every couple of days until drainage diminishes, and then treatments are spaced more widely.

6. Treatment is started with weak .75 per cent boric acid iodine powder, but is stepped up to a stronger (2) per cent if cessation of discharge dose not occur after a reasonable interval. Sulfonamide powders may be used instead of the Sulzberger powder, and this method of treatment has met with even greater success in the hands of some men.

Where the necrosis is mainly confined to the drum membrane and where the ossicles and mucous membrane of the middle ear remain unimpaired, simple cleansing and drying of the canal may result in the closure of the perforated drum and healing.

Where necrosis has destroyed the mucosa of the middle ear, the annulus and part or all of the drum, the skin of the external ear grows down into the middle ear to cover the denuded bone. Marginal perforation is usually seen. The skin lining the middle ear cavity extends into the attic, where desquamation of the outer cornified layers results in the accumulation of epidermal débris. This condition is called secondary acquired cholesteatoma, the chronic discharge being caused by saprophytic infection of the cholesteatoma.

As long as moist infected débris persists, the surrounding bone may be gradually absorbed because of the local production of lactic acid and on account of the pressure. If this cannot be controlled by mechanical removal of the layers of débris, then a modified radical mastoidectomy may be necessary.

The use of antibiotic drops and various other antiseptics all have their advocates, but the very multiplicity of methods indicates the lack of any one remarkable successful method. Therefore, I would like to emphasize again the importance of prevention, and the most important measure is early incision and drainage plus adequate dosage of antibiotics.

Along with other research we need to discover a vaccine against crime, a hormone for peace, and organize a school to teach human values.

ANNOUNCEMENTS

YOUNG TULANE graduate with two years GP experience wishes to associate with a "too-busy" GP-Surgeon to relieve the patient load on him and gain surgical experience.

Write Box 42 c/o *The Mississippi Doctor.*

MEDICAL OFFICERS needed at Redstone Arsenal, Huntsville, Alabama, GS-12 and GS-13, $7040 and $8360 per annum respectively. Industrial Medical Program includes the operation of a clinic and emergency stations. Submit Standard Form 57, Application for Federal Employment, to Civilian Personnel Officer, Redstone Arsenal, Huntsville, Alabama. Attention: Miss Dorothy Hodges.

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EDITORIALS

ACADEMY APPROVES GP.

The Academy of General Practice is serving remarkably at both the state and the national levels. The courses the Academy furnishes to keep their members up to date are excellent. The short course for the busy doctor is the best type of refresher. He comes straight from the field of practice and he gathers new information to be utilized by his clientele upon his return. In this way he serves his people with the latest and the best. The plan helps the doctor to digest what he hears more thoroughly also.

The Academy promotes recognition of the general practitioner in hospitals. Too many practitioners have been barred from the hospitals, and with people becoming more hospital-minded, a patient is too often separated from his family physician. The acute cold, the obstetrical case, and the injured require hospitalization. The practitioner should be permitted to go with his patients.

THE NURSE

The health forums sponsored by the University of Tennessee are serving a good purpose. "Your Nurse and Your Health" is a timely focus. There was a time when the general practitioner and his nurse pretty well constituted the working unit in medicine. The medical service unit, whose responsibility it is to carry the best in medicine to all the people, is now composed of the doctor and the nurse and the pharmacist, the dentist, the hospital, and the research laboratory and biological houses. It takes all of these professions to constitute the delivery unit of medicine. Every spoke in this medical wheel is important, but no two are yet quite so important perhaps as the doctor and the nurse.

In the practice of his profession, the doctor's right arm is still the nurse. The nurse's keen observation and intuition can help make a diagnosis and also aid in the prognosis. In the application of the strictly scientific measures the well-trained registered nurse is indispensable in the recovery of the very ill patient. She can bring inspiration and determination to a patient at a time when all depends on inner reserves. She can enhance physical comfort and activate the spiritual resources as well. She can bring health information that may be used in the future to good advantage to prevent illness. The nurse imparts a get-well atmosphere to the sick room. She brings sunshine and good cheer. We need more well-trained registered nurses. Our state can easily have a system now that will give us plenty of this most needed type.

GERIATRICS

Geriatrics has been slow to develop as a specialty. But this field of medicine offers compelling opportunity. Life expectancy is somewhat shorter in the aged, but we might recover much knowledge and wisdom from those spent years. It has been found that age is no deterrent to surgery and that strenuous medicinal regimes are not in vain. It is good human economy to take care of the aged. It would be well for our young doctors to think more along this line.

McCALL ADDRESS HOSPITAL ASSOCIATION

In his address before the Mississippi Hospital Association, Dr. Cummings H. McCall, president of MSMA, stated "As a business, the hospital is a misfit in our capitalistic society. We stand for free enterprise—but the hospital is a very special sort of business, perhaps a service business, not a returning business in the usual fiscal sense."

"The role of a good hospital manager is comparable to that of an accomplished bass player in a symphony orchestra; you don't hear him, but miss him if he is out."

"The hospital administrator must devote himself daily to self-education in a field which is becoming more and more complex. He must learn to be leader and follower, warrior and peacemaker, organizer and member."

"I would urge upon you the necessity of a well-rounded public relations program at the local level. The modern hospital gives and saves life. The hospital's problems are the community's problems—we need mutual understanding." Dr. McCall emphasized that the relation between the patient and the doctor is still sacred, that any person should have the right to chose his doctor or even his hospital. He believes in the people having a voluntary prepayment plan for insurance companies. He believes also that the specialties, as radiology, pathology and anesthesiology, should be divorced from the organization and fiscal structure of the hospital. He also believes there is a greater realization and understanding of the charity problem—"We will meet this problem and without federal aid," he opined. The foregoing indicates medical integrity and courageous expression. The mission of a hospital is to serve. Service is the measure of greatness. The hospital administrator needs the best of financial ability, and he must have the vision of saving and building human lives. The hospital has a function higher than simply staying out of the red.

ON THE FEET OF LITTLE CHILDREN . . .

In the medical profession we have many specialties. We are quite sure that no one of them has grown faster and served a fuller purpose in Mississippi than that of pediatrics. Mississippi has great assets in its children. They are receiving much better care than they did a few years ago. We have a number of men in this state responsible for our pediatric progress. However, Dr. Harvey Garrison, Sr., wears the prodromos mantle.

As a general practitioner for many years he did excellent ground work. Pioneering in the pediatric specialty, he has built a fine monument of valuable health assets to our state.

PEDIATRICS

HARVEY F. GARRISON, M.D.

ATRESIA OF THE ESOPHAGUS WITH TRACHEOESOPHAGEAL FISTULA. A. C. Williams, H. A. Carithers and N. Weil J. Florida M.A., 40:621-628 (March) 1954.

The authors advise early diagnosis of esophageal atresia, since many infants with this anomaly can be cured by surgery. The prognosis is worsened by the baby's having been offered feedings, particularly if there is a tracheoesophageal fistula. In the four cases described by the authors, two patients survived and two died, one because of delay in diagnosis and treatment (the baby had well-developed bronchopneumonia) and the other because he was a premature baby with a poor chance for survival of surgery and because no lower segment of the esophagus could be found, thus making an anastomosis impossible. He was the only one of the four who did not have a fistula. The symptoms of this condition are excessive drooling of frothy mucus; choking, coughing, and difficult breathing; and immediate regurgitation of feedings associated with choking, coughing, and cyanosis. In diagnosis, an esophageal catheter should be passed to demonstrate obstruction, iodized oil should be injected to show atresia or fistula of the upper segment, and a roentgenogram should be made of the abdomen, air in the stomach being an indication of a tracheosophageal fistula. Surgical management of the condition is described in detail.

COMMENT

These are all exceedingly interesting cases, both from the standpoint of saving lives that would otherwise go, and in most instances avoiding a life-crippling condition. We are diagnosing a good many of these cases all along now and having them operated.

DEATHS

DR. F. G. GOODWIN

A prominent Hinds countian, Dr. F. G. Goodwin, 89, of Raymond, died September 24 in the Robinson Street Rest Home in Jackson.

Dr. Goodwin was born in Hinds county and had practiced medicine in Raymond for over 50 years. He was a member of the Raymond Baptist Church.

His survivors include three sons, E. Magaee Goodwin of Raymond, W. R. Goodwin of Alexandria, La., L. B. Goodwin of Miami, Fla.; one daughter, Mrs. D. A. Puryear of Donna, Texas; and one brother, W. W. Goodwin of Raymond.

DR. K. L. WITTE

Servicees for Dr. Kinney L. Witte, prominent Leland physician and former mayor who died August 17 at the Leland City hospital following a heart attack, were conducted from the Leland Baptist church.

Head of the Witte Clinic here, Dr. Witte, who was 73, was a member of the staff of the Leland City Hospital and one of its founders. He was born in Shelby, Tex., but had resided here for the past 47 years.

Well-known throughout the Delta, Dr. Witte in addition to serving as mayor, had served as a member of the Leland board of aldermen for 24 years and during World War 11 was head of this city's Selective Service Board. He was a 32nd Degree Scottish Rite Mason.

The doctor was known for his assistance for educational purposes to a number of young people.

He was a graduate of the Shelby, Tex., High School and attended Texas A and M College where he was a member of one of that school's first football teams. He also attended the University of Texas Medical School at Galveston and was graduated from the Tulane University School of Medicine in 1904.

He leaves his wife; two sons, Dr. K. L. Witte and Dr. W. S. Witte, members of the staff of the Witte Clinic; a daughter, Mrs. Walter Swain of Hollygrove and seven grandchildren.

DR S. L. LANE

Dr. Swinton Lamar Lane, who came to Hollandale in 1924 and was plantation physician for the Delta and Pine Land Company at Scott a number of years before entering the Army in World War 1 as a captain in the Medical Corps, died at 10 p. m. August 31 at Sanatorium after an illness of several weeks. He was 68.

Services were conducted at the Hollandale Methodist Church.

Born at Louisville, Miss., Dr. Lane was graduated from the University of Tennessee School of Medicine in 1913. He served his internship at the old Memphis, Tenn., Charity Hospital and did postgraduate work at the University of Bordeaux, France; at Rockefeller Institute in New York and at Tulane University, New Orleans. He was a Mason, a Shriner and a member of the American Legion.

He leaves his wife, Mrs. Maurine Hughes Lane and two daughters, Mrs. W. H. Ashley, Jr., of Atlanta, Ga., and Miss Betty Lane of Hollandale.

DR. JOHN C. BELL

Services were conducted August 19 for John C. Bell, retired Humphreys County physician, who died at his Belzoni home.

Dr. Bell, who was 80, was born in Pontotoc and had practiced in Belzoni from 1919 until about two years ago when he retired because of ill health. He used a Model T Ford to make his first rounds over the rough country roads of this area.

He was a graduate of the University of Arkansas and Memphis Medical College and was employed by the Memphis and Shelby County Health Department prior to moving here.

In 1951 he was honored by the University of Tennessee for having completed half a century of service. He was a Presbyterian.

He leaves his wife, Mrs. Mary Beatty Bell, and three sisters. Miss Sarah Bell, Miss Lou Bell and Mrs. J. N. Nisbett, all of Pontotoc.

DR. B. J. HEWITT

Dr. B. J. Hewitt, prominent physician and surgeon, died at McComb Infirmary August 21 after several days of critical illness which followed a heart attack. He was 67.

Dr. Hewitt was a native of Amite County but had lived in McComb all his adult life. He was chief surgeon for the Louisiana Division of the Illinois Central Railroad for 20 years, retiring voluntarily eight years ago, and continuing his extensive local practice.

He was a deacon of the First Baptist Church here for more than 25 years, a Mason, Shriner, member of regional, state and national medical societies, and was a Captain in the Army Medical Corps in World War 1, and a member of the AEF and the Army of Occupation in Europe.

Son of the late T. J. and Mrs. Emily Lofton Hewitt, pioneer residents of the Mars Hill community. Dr. Hewitt is survived by his wife, Mrs. Mary Beard Hewitt, two daughters, Mrs. Eugene Hardison of Senatobia, Miss, and Mrs. Ike Townsend of Zachary, La., one sister, Mrs. Hattie Burris of Hattiesburg, and four brothers, Chancellor F. D. Hewitt of McComb, Dr. W. A. Hewitt of Jackson, B. E. Hewitt and H. H. Hewitt, both of Amite County.

Dr. Hewitt, named Bryant Jefferson, was educated in Amite County schools and was graduated from Mississippi College in 1907 and from University of Tennessee Medical school in 1911.

DR. A. M. RAGAN

Services for Dr. A. M. Ragan, 70-year-old Edwards physician who died August 8, were held at the Edwards Methodist Church.

Dr. Ragan died at a Jackson hospital after a long illness.

Born in Raymond, Dr. Ragan received his degree in medicine from Vanderbilt University. Shortly after graduation, he was a ship's doctor for the United Fruit Company.

He moved to Edwards in 1909 and has practiced here since that time.

Surviving are his wife, Mrs. Emma Chichester Ragan of Vicksburg; one daughter, Mrs. T. L. Owen of Edwards; two granddaughters, Miss Virginia Ann Owen and Miss Eve Owen, both of Edwards; and one sister, Mrs. Claude Selser of Memphis.

DR. J. S. PRINE

Dr. J. S. Prine died at his home on Church Street in Columbia, Miss., following a two-week illness.

Dr. Prine was born and reared in the Society Hill community and had practised medicine in Columbia for the past 50 years. He was a member of the First Baptist Church.

He leaves two sisters, Mrs. Susan Weatherford, Henley Field, Miss., and Mrs. Alice McCall, Brookhaven.

Funeral services were conducted from the First Baptist Church Sunday afternoon with Rev. E. Y. Soilleau, pastor of the Calvary Baptist Church, officiating. Interment was in the Woodlawn Cemetery.

Acute Hemorrhagic Gynecologic Emergencies*

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Gynecologic lesions form one of the major groups of surgical emergencies seen in any general hospital. Many of these conditions start in an insidious fashion or progress after onset slowly enough to allow the patient to visit her physician's office. Thus this type of case may be encountered by a generous majority of the members of the medical profession.

Study of 5 years of emergency surgery at the Mayo Clinic revealed that acute appendicitis was the lesion most frequently treated.[1] Of the 1,970 patients on whom emergency operations were performed 921 (46.6 per cent) had acute appendicitis. Gynecologic lesions requiring emergency surgical treatment were second in frequency. In this group were 279 patients (14.2 per cent of the total 1,970). Patients with gynecologic lesions which require emergency surgical measures can be divided readily into three groups; 1) those who are bleeding externally; 2) those who are bleeding internally and 3) a smaller number who exhibit no evidence of hemorrhage. The hemorrhagic ones only are to be discussed today.

VAGINAL HEMORRHAGE

One hundred and fifty-five (55.6 per cent) of the 279 patients who had gynecologic hemorrhage requiring emergency surgical treatment in the series recently studied presented themselves for treatment because of vaginal bleeding. In 120 of these, bleeding was due to incomplete abortions and, as is to be expected, almost all were in the first trimester of pregnancy. The condition of such patients should be classified on admission as incomplete, complete or inevitable abortion, and in any type the bleeding may be slight, moderate or severe. If the bleeding is rapid and continuous enough, the patient's protective and adaptive mechanisms will be unable to cope with the situation and the patient's condition will rapidly deteriorate into shock. To all but obstetricians the amount of blood that a young, healthy woman can lose through the vagina and still be in fair shape is rather appalling. However, this is still a relatively limited amount and such patients need expert help. First of all, supportive therapy with elevation of the feet, external application of heat, intravenous administration of fluids and whole blood should be instituted. Loss of blood must be controlled, and this means packing, administration of oxytocics or dilatation and curettage at once.

A large no. 15 or 16 needle should be put into a vein before the operation begins. Thiopental sodium is a satisfactory anesthetic agent especially in conjunction with a gas mixture of 50 per cent nitrous oxide and 50 per cent oxygen by mask. However, it should be remembered that the severer the shock the less anesthetic will be necessary. After the uterus is curetted unless the bleeding is remarkably decreased or practically stopped, an intra-uterine pack should be inserted and left for 24 hours. If a blood bank is available, replacement of the blood that is estimated lost is indicated, for it will save the patient recuperative time and money in the long run.

Surgical treatment of the patient who is bleeding slightly and of many who are bleeding moderately at time of admission can be delayed for 24 to 48 hours to see whether they will not complete the abortion themselves and stop bleeding spontaneously. After this lapse of time if bleeding continues, curettage is indicated.

In general, the patients whose bleeding is due to abortion in the first trimester of pregnancy are young and in good health, and, therefore, for them even in the face of considerable loss of blood, the prognosis still is good. After a criminal abortion, however, the patient who is admitted in an obviously septic condition is seriously ill. The low temperature, low blood pressure and the rapid pulse point to an entirely different situation. This patient is in desperate circumstances and in spite of supportive therapy and antibiotics may not respond and may die promptly.

Patients with postpartum hemorrhages, as seen by all but obstetricians, usually are several days past their confinement and the bleeding is only slight to moderate in amount. There is often some odor to the discharge but curettage will remove the offending piece or pieces of retained secundines and can be done without even interrupting the feeding schedule of the baby.

The longer after delivery these patients go before curettage is necessary the more the surgeon should suspect the presence of a hydatidiform mole, choro-adenoma destruens or chorio-epithelioma and all of the tissues removed should be subjected to microscopic examination. Many patients with hydatidiform moles will also have large palpable cystic ovaries with the luteal cysts. If there has been no indication of chorio-epithelioma in the curettage, then only observation is indicated as the cysts will gradually decrease in size.

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*Read at the meeting of the Mississippi State Medical Association, Jackson, Mississippi, May 11 to 13, 1954.

†The Mayo Foundation is a part of the Graduate School of the University of Minnesota.

It cannot be re-emphasized too often that particularly in emergency conditions the physician should not jump to conclusions, but should elicit the history carefully and make as complete a physical examination as possible. The details of the illness are important and the situation becomes most embarrassing for the physician who promptly concludes and tells the young matron that she is having a miscarriage only to find out that she has been married but 24 hours and has a badly torn hymenal ring that may need a suture but certainly does not require curettage.

Pedunculated polyps or fibroids are seen not infrequently when the presenting symptom is vaginal bleeding. The polyps only rarely cause moderate bleeding, and if the polyp is small a lesion within the uterus should be suspected. However, a prolapsing fibroid in the cervix can cause real trouble. It bleeds from pressure of the surrounding cervix, or from ulceration of the surface of the fibroid or because of torsion and infarction. Such a fibroid may vary in size from 1 to 10 cm. or more in diameter and when necrotic is a most obnoxious and malodorous tumor. The difficulty lies in determining whether the tumor is malignant or not. The chief distinguishing features of a large fungating malignant lesion filling the posterior part of the vagina will be destruction of the cervix by the growth. If pieces pulled from it show a friable polypoid tumor, the lesion can be presumed to be malignant. A fibroid in the cervix can also fill the posterior vagina and if necrotic will seem as bad as any malignant lesion but beneath the necrotic portions are hard, firm, fibrous tissues that grossly appear benign. Surrounding the lesion is a thin dilated rim of cervix that sometimes must be searched for diligently in order to establish the diagnosis. Immediate removal of the offending tumor by morcellation and curettage is the treatment of choice. The bleeding can be controlled by packing the uterus. Chemotherapy should be started, the patient observed and very probably the temperature chart will not even indicate postoperative morbidity. If hysterectomy is the treatment indicated, it is best to delay it for a period of days or weeks after the initial surgery to allow the tissues to return as nearly to normal as possible.

Occasionally a malignant lesion bleeds briskly enough to warrant emergency treatment and, if so, then establishment of diagnosis by biopsy or by dilatation and curettage should be done first. If the bleeding continues, packing should be used to control the bleeding while hysterectomy is being done or until the start of radiation therapy which will control the loss of blood promptly.

When both digital and speculum examinations of the vagina reveal no source of the bleeding and the blood is seen coming from the cervical os, the diagnosis is not immediately evident and must be established by a dilatation and curettage. A submucous fibroid may bleed enough to warrant emergency operation; if the patient is more than 40 years of age and the uterus is mobile, then vaginal hysterectomy with repair of any relaxation of the vaginal walls is a satisfactory procedure.

Malignant lesions of the uterus seldom bleed this briskly but the rare rhabdomyosarcoma may bleed considerably as its presenting symptom. These tumors in the uterus are large, polypoid and present a ragged, necrotic end in the cervix; the surface is smooth and shiny, almost membranelike. They are resistant to radiation and tend to recur locally or intra-abdominally. When an accurate diagnosis is made, the cervix should be packed and sutured. Then the vagina should be prepared again and an immediate hysterectomy performed. The prognosis for a 5-year survival is perhaps 10 to 15 per cent.

All surgeons and general practitioners as well as gynecologists occasionally see and have to worry over the advanced pelvic malignant lesion, usually in the cervix, that often seems to be beyond hope of cure. Most of the patients have had extensive radiation treatment and it is frequently impossible to distinguish between carcinomatous or radiation ulcers in the mass of resulting scar and inflammation. Yet the patient is still active, still wants to live while she can, and she calls her physician for help to control bleeding that threatens to be exsanguinating. If such bleeding can be controlled vaginally either by suture or packing, all is well and good. But occasionally it cannot be controlled by external means and other methods of control must be considered. The blood supply of the uterine fundus and cervix comes from rather definite and limited sources. The major one is the uterocervical arteries of which the uterine is the largest vessel and derives from the hypogastric artery. Next in importance are the utero-ovarian anastomotic vessels, and lastly, the small vessels of the round ligament which derive from the inferior epigastric arteries. When necessary all can be tied on one or both sides. At times the bleeding is so definitely from one fornix or side of the pelvis, that it seems necessary to ligate only the vessels of that side. No harm results if it is necessary to ligate either one or both hypogastric arteries. Salzberg and co-workers[2] reported 6 such cases in all of which bleeding was controlled by the abdominal approach. Four of the 6 patients subsequently died in 4 to 19 months, however, at the time of publication 2 were alive and doing well 2½ years after operation.

INTRA-ABDOMINAL HEMORRHAGE

Bleeding from intra-abdominal lesions is considerably more dramatic in onset and course though perhaps not quite as colorful as the preceding conditions. From the gynecologic standpoint two conditions may be encountered at any time: ectopic pregnancy and ruptured corpus luteum or follicular cysts. Leaking fibroids and ruptured uteri are uncommon and are seldom encountered by the average surgeon. The rare conditions would include lesions such as ruptured veins of the broad ligament, rupture of an utero-ovarian varix[3], ruptured aneurysm of any pelvic artery, spontaneous hemorrhage from blood dyscrasia and ovarian pregnancy. Lastly and not so uncommon in this age of high-speed transportation is trauma with pelvic complications, but these are not pertinent to the immediate discussion.

The hemorrhaging patient calls for not only careful history and physical examination, but also for rapid evaluation and careful judgment. At times, of course, events are progressing so rapidly that the physician must start giving fluids and blood plus other supportive therapy, getting at the story of the onset and relative past history as he works. The diagnosis then would be intra-abdominal hemorrhage and the treatment would be exploration. However, much can be accomplished in a few minutes of questioning of the patient and her relatives. Trauma can be excluded quickly. The type of onset can be accurately determined, whether it was gradual, rapid or like a "bolt out of the blue." The length of time since the onset helps some in estimation of the severity of the bleeding. A cold, white, perspiring facies, low blood pressure, rapid thready pulse, and air hunger within a few minutes of the onset are grave signs of massive hemorrhage. A patient in the same condition which has taken several hours to develop, however, does not face nearly so high a risk and the prognosis for control of the bleeding is that much better.

A question of prime importance is whether the patient is pregnant or not. Rupture of the uterus, for instance, occurs almost invariably in the last few weeks of pregnancy[1]. Only rarely does a primigravid uterus rupture, and in most cases of rupture several previous pregnancies have occurred. A large percentage of the ruptures occur through the scars of previous caesarean sections. Severe abdominal pain unlike labor pain is the commonest symptom of a ruptured uterus; occasionally shoulder pain may be mentioned, while nausea and vomiting are mentioned by most patients.

Vaginal bleeding is often profuse, but most noticeable are the extreme abdominal tenderness, rebound tenderness and abdominal distention. The presence of the fetus immediately beneath the abdominal wall confirms the diagnosis and the treatment is immediate laparotomy to control loss of blood and save the mother and child. Fifteen per cent of the babies may survive and 30 to 50 per cent of the mothers. The outlook for the mother is enormously enhanced if she happens to be in a hospital under observation or if the uterus ruptures during manipulation of the fetus or during labor. If she is not in a hospital, her survival depends on whether the uterus is in a position to contract and slow up the bleeding spontaneously following the rupture as will occur when the baby or the baby and placenta are completely expelled into the abdominal cavity.

After removal of the baby, the care of the uterus is optional; either the rent in the wall is repaired or the uterus is removed. The latter is the more commonly employed procedure.

When the pregnancy is obviously not far along, rupture of the tube due to ectopic gestation is the most likely lesion to be the cause of intra-abdominal hemorrhage. The pain of the onset is typically sudden and is sharp enough to cause the patient to cry out or faint, and the pain is continuous and severe. An excellent diagnostic sign is pain referred to the shoulder from the irritation of blood beneath the diaphragm. The history is most helpful for in addition to the typically sudden onset of bleeding, the last menstrual period is generally late, abnormally short or different in character and usually daily spotting or bleeding has subsequently occurred. The possibility of pregnancy should be ascertained and even from the unmarried patient it is not difficult to get an honest answer. The patient is sick and in enough pain to want help and want it at once. The signs of intra-abdominal hemorrhage with acute tenderness and rebound tenderness as well as shifting dullness are present. On pelvic examination an adnexal mass or bogginess of the cul-de-sac may or may not be noted but in all cases motion of the cervix causes exquisite pain. The quantity of blood lost per period of time determines the amount of shock present but the best clinical evaluation of the severity of the loss of blood is based on the degree of restlessness or the "air hunger" that is present. Laboratory data only help confirm the evidence of blood loss and the possibility of pregnancy as well.

The treatment of ectopic pregnancy is entirely surgical. The risk to the life of the mother does not justify procrastination even though live babies have been reported in the literature. When the diagnosis has been established, abdominal exploration should be carried out and the affected tube removed.

Indistinguishable from tubal ectopic pregnancy is ovarian pregnancy. This condition, of course, requires partial or complete oophorectomy.

In the differential diagnosis bleeding graafian follicles or corpus luteum cysts must be considered. Both of the latter conditions occur most often in young unmarried women less than 25 years of age. The pain is sharp at the onset but usually is not so excruciating as in tubal ectopic pregnancy. The severe pain then gradually lessens. The onset may be unilateral in either ectopic pregnancy or ruptured cyst, but it soon becomes generalized. Abdominal tenderness is common but it also is not as marked in bleeding corpus luteum cysts as in ectopic pregnancy nor are the pelvic organs as acutely tender in ruptured cysts and localization of the pain is poor. The signs of severe abdominal hemorrhage are found only rarely. There is, of course, no aberration of the menses in corpus luteum cysts and the history may reveal typically similar episodes in previous months and on alternate sides. Ruptured graafian follicles are the so-called mittelschmerz phenomena of ovulation and therefore are encountered in the middle of the menstrual cycle. Treatment consists of watchful waiting unless evidence of loss of blood is suggestive of considerable intra-abdominal hemorrhage or if acute appendicitis or ruptured tubal ectopic pregnancy cannot be reasonably excluded.

The only remaining lesion that needs to be discussed per se is the leaking fibroid. The cause is rupture of one of the vessels about a fibroid, usually on the posterior of the fibroid where it lies against the sacral promotory. The bleeding being venous is not as massive as when the artery of an ectopic pregnancy has given way, but can be profuse. Patients often know they have had a tumor for some time and may well volunteer that the onset was at such and such a moment. Very often physical exertion seems to have played a part in the rupture of the vessel and it may occur while the patient is working in the garden, jumping from a bus or after any other mild activity. Signs of abdominal hemorrhage and possible shock are present, but pelvic examination reveals a pelvic mass that is relatively nontender. Treatment consists of exploration and hysterectomy or rarely myomectomy.

Other causes of intra-abdominal hemorrhage should be considered in the differential diagnosis but ruptured varices in the broad ligament, ruptured aneurysms, blood dyscrasia causing intra-abdominal symptoms are all very rare. The liver or spleen also can tear and give signs of intra-abdominal hemorrhage that after a few hours seems to have little or no localization. Such hemorrhage is uniformly associated with trauma. Acute hemorrhagic pancreatitis is sudden and catastrophic. Shock, similar to that in ectopic pregnancy, is associated, but the maximal tenderness and usually the onset of the pain are high in the epigastrium. The abdomen, though markedly tender and exquisitely tender on rebound examination, is soft and without spasm, and pelvic examination gives negative results. The laboratory helps as the concentration of amylase in serum is always high in the first 48 hours after onset.

SUMMARY

The acute gynecologic hemorrhage which requires emergency treatment has been considered on the basis of vaginal or intra-abdominal bleeding. For the vaginal emergencies the emphasis in this paper is mainly on physical examination, while the diagnosis of the intra-abdominal lesions depends on both on an accurate history and careful physical examination.

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The Hyperventilation Syndrome – Functional Variety Analysis of Complaints In 200 Cases

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The hyperventilation syndrome may be defined as a clinical expression of respiratory alkalosis, which is usually functional in origin but may be organic. The functional variety, with which this paper is concerned, is characterized by a varied clinical picture. The complaints of 200 patients seen in the Ochsner Clinic during the ten-year period ending January 1953, were analyzed and form the basis of this report.

PHYSIOLOGY

According to the law of gases, alveolar and arterial carbon dioxide tends to be balanced. Therefore, any reduction in alveolar carbon dioxide is immediately followed by a parallel drop in arterial carbon dioxide, which may reach the level of respiratory alkalosis. When hyperventilation develops, the alveolar carbon dioxide is diminished by an involuntary bout of hyperpnea, that is, an increase in depth, or rate of breathing, or both.

PATHOLOGIC PHYSIOLOGY

What initiates hyperpnea? Under normal conditions, the inherent rhythmicity of the respiratory center may be altered by various extrinsic or intrinsic afferent reflex impulses, which could be stimulating or depressing. These alterations are usually asymptomatic, since different regulating mechanisms rapidly compensate for them. If a stimulating impulse has induced hyperpnea in a normal individual, the resulting apnea will restore the previous breathing rhythm. As is well known, apnea is a physiologic reflex temporary arrest of respiration, following any excessive overbreathing episode. Through apnea, the organism tends to prevent further pulmonary escape of carbon dioxide, and let it reaccumulate in the arterial blood until it reaches its normal level.

In patients with the hyperventilation syndrome the respiratory center is abnormally oversensitive. A trivial psychogenic factor, or minimal cutaneous irritation is liable to induce sustained hyperpnea, in spite of counteracting apnea. In daily life, apnea occurs repeatedly during such acts reflexly inhibiting respiration as some emotions, speech, swallowing and sleep. In normal persons, this type of apnea is followed by a short, silent overbreathing wave. We believe that, in susceptible subjects, this postapneic hyperpnea may well lead to clinical manifestations of hyperventilation (Fig. 1).

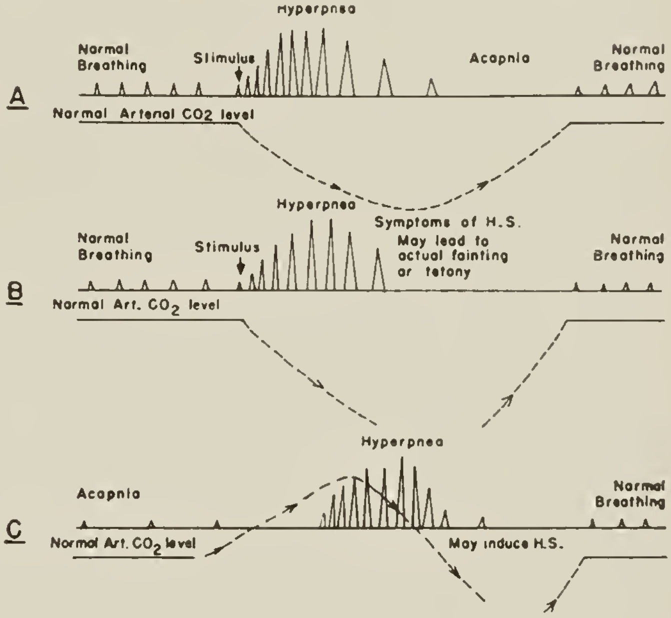

Fig. 1: A) Normal response to a stimulus by hyperpnea, followed by acapnia and restoration of normal breathing. B) In a susceptible individual, the stimulus leads to various hyperventilating manifestations before normal breathing is restored. C) In other types of susceptible individuals, the stimulus may be involuntary acapnia, inducing hyperpnea which may lead to hyperventilating symptoms.

Alveolar and arterial carbon dioxide could be reduced at a rapid rate, considering that a single deep inspiration may decrease the carbon dioxide pressure by 7 to 16 mm/Hg.; continuous hyperpnea for 30 to 60 seconds is sufficient to produce the major reduction of carbon dioxide and after 2 to 3 minutes of sustained hyperventilation, samples of alveolar air may show a carbon dioxide pressure reduced as much as 50 per cent, with consequent and similar drop in arterial carbon dioxide[3].

The alkalotic effects induced by diminution in arterial carbon dioxide are demonstrated by the alkaline deviation of the pH of blood and urine.

A low arterial carbon dioxide level has a specific effect upon some sensitive structures. It produces constriction of arterioles, which is manifested by cutaneous vasoconstriction and cerebral ischemia. It also causes splanchnic vasodilatation, which seems to neutralize the arterial constriction, and this is the reason that hyperventilation does not in itself elevate the blood pressure. Finally, there is a decrease of coronary flow. If the arterial carbon dioxide level becomes still lower, then peripheral vasoconstriction becomes more pronounced, manifested by various paresthesias[2]. Also, cerebral ischemia is aggravated, and starts to encroach upon mental faculties and level of consciousness, as proved by slowing of electroencephalographic waves[1].

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INCIDENCE ACCORDING TO AGE AND SEX

The hyperventilation syndrome is encountered a little more often in females than in males, 54.7 per cent of the 200 patients in the present series being females. Patients of all ages may be affected. The youngest in the present series was 14 years and the oldest 75. The highest incidence was in the "depression years of the fourth decade of life."

SYMPTOMATOLOGY

The clinical picture of the hyperventilation syndrome may be either acute or chronic. The acute attacks are spectacular and easily recognized. The chronic form has a subclinical, fluctuating course with atypical manifestations and, possibly, asymptomatic intervals.

The complaints in the 200 patients in this series in order of frequency are shown in Table I. The commonest complaint was variously described by the patients. Some complained of inability to take as a feeling of constriction, pressure or both about a deep satisfying inspiration. Others described it the lower portion of the chest. The patient has to breathe heavily, sometimes with the assistance of the accessory respiratory muscles. This type of complaint is commoner in females, probably because their thoracic pattern of respiration has made them more "breathing-conscious." If sustained, this condition may, very rarely, result in what Wolf[1] first described as "immobile and contracted diaphragm," producing severe substernal pain. Still others said they yawned or sighed frequently, not in association with actual somnolence or emotional situations.

It is highly surprising that all patients did not complain of respiratory symptoms, as would be expected from the name of the condition. This may be due to the following facts. Strangely enough, all patients are not aware of the first step of the causative mechanism, the involuntary hyperpnea. Moreover, breathing difficulties appear during the phase of apnea. The "apneic" diminution in the respiratory rate is interpreted as "breathing difficulty" by the subject who, naturally, has no conception of the physiologic sequence of events. In clinical practice, presence of respiratory complaints should indicate that overbreathing was so sustained that it reached the symptomatic level of apnea.

The term, nervousness, the next most common complaint, was used to describe various feelings ranging from occasional irritability to continuous impulsive agitation. Some patients described their nervousness as "internal," with no "external" manifestations. This outward appearance of equanimity may conceal a state of conversional hysteria[3].

Dizziness, giddiness, unsteadiness and lightheadedness must be considered as early manifestations of central neurovascular involvement, as proved by the appearance of first noticeable changes in brain wave frequency[5]. These symptoms are more likely to occur if the subject happens to be in the erect position, or if the arterial carbon dioxide has decreased too rapidly, because the cortex is highly sensitive to these processes[6]. Nicotinic acid or intravenous administration of calcium has no effect whatsoever on these symptoms, and nitrites or nitroglycerin aggravate them. Lightheadedness was the only symptom with a higher incidence in males (6 per cent in males and 0.5 per cent in females).

Over one-third of the patients complained of thoracic pain. This may be described as transient, sharp twinges over the precordium, or as more persistent dull pressure over the lower anterior portion of the chest. The pain is not related to exertion, is not associated with the precipitating causes of angina, is not affected by nitrites and nitroglycerin, and produces no typical electrocardiographic changes. If erroneously diagnosed as "heart pain," the course of hyperventilation is aggravated by the addition of a new element of anxiety to an already anxious individual. Only a correct diagnosis could break this vicious cycle.

Approximately one-fourth of the patients complained of paresthesias, described as numbness, tingling and coldness, mainly of the hands. In 10.5 per cent of cases, the distribution was characteristically facial and peri-oral. The peripheral vasoconstriction is responsible for these manifestations which, for still unexplained reasons, may be asymmetrical or even unilateral.

Fatigue was not preceded by exertion and was described by the patients as constant. A nocturnal hyperventilating paroxysm, chronic subclinical hyperpnea, or the amount of energy consumed by psychogenic or nervous tension may explain this symptom.

A state of anxiety was diagnosed in approximately one-fourth of the patients in this series, more than half of whom had the chronic subclinical form of hyperventilation. Usually the patient transfers his anxiety to one of the organs involved in the clinical manifestations of his hyperventilation. Probably, his complaints are a part of a fear reaction, which so easily develops when he is placed in an embarrassing situation[7].

Palpitations occurred usually during acute emotional outbursts, especially the nocturnal ones. "Skipped beats" could not often be confirmed by auscultation or even electrocardiography. A "heart beating fast" rarely was found to exceed the actual rate of 100 per minute.

The complaint of weakness may be attributed in part to the hypermetabolism of nervousness and anxiety, and, partly, to an unconscious desire and excuse for "flight, to avoid fight."

A feeling of impending fainting is experienced whenever, in spite of already established dizziness, giddiness and lightheadedness, the patient is unable to stop hyperventilating. This occurs either because the patient is unaware of the existence and importance of the hyperpnea, or, because the reflex compensatory mechanism preserving the integrity of the cortical functions have failed to develop as they should.

Vasomotor troubles, usually "hot flashes" over the face, provide a contrast with the cold extremities.

Careful questioning will probably reveal the presence of bloating, flatulence and belching. This is to be expected in these unstable individuals in whom aerophagia is extremely common.

Actual fainting follows the decompensated sensation of impending fainting and, naturally, stops the whole overbreathing episode before it could produce tetany. The attack is usually of short duration and is not accompanied by convulsions. No patients in this series sustained injury during attacks.

Tetany is considered to be the clinical climax of respiratory alkalosis. It appears in oversustained hyperpnea if actual fainting has not meanwhile occurred. It varies from slight muscular stiffness to pronounced contractures with the classical attitudes of carpopedal spasm. Carpel spasm could be precipitated by constricting the upper arm (Trousseau's sign), although, sometimes, it may appear on the free arm, suggesting that the interference with venous return caused by constriction tends to delay the phenomenon. In all our cases with tetany, hypereflexia, carpopedal spasm, and the very reliable Chvostek's sign were present.

Visual difficulties such as blurring, peripheral scotomas, and "flying shadows" were insignificant and of short duration.

From this analytical survey of symptoms several conclusions may be drawn. First, there is no specific symptom present in all patients with hyperventilation. The most frequent symptom, breathing difficulty, is rather characteristic of the acute overbreathing episodes but is not a common complaint of the chronic "subclinical hyperventilator." Hyperventilation is not a syndrome with a constant set of symptoms occurring always together. The patient may present an unusual combination of symptoms depending on several constitutional and temperamental factors. The usual pattern of complaints observed in the acute form is one of breathing difficulties, paresthesias, dizziness, giddiness, and sensation of impending fainting. Finally, hyperventilation seems to develop in some susceptible individuals with a specific psychosomatic background which may be labeled "the hyperventilation personality."

DIAGNOSIS

The diagnosis of the acute form of hyperventilation is relatively easy for the alert physician, who will promptly suspect it when faced with an unusual set of psychosomatic complaints. The chronic form, with various misleading symptoms, requires complete physical examination and careful psychologic evaluation before a final opinion can be reached. As regards diagnosis of the asymptomatic periods of potential or chronic hyperventilators, it was found that in such individuals carbon dioxide tension in expired air is lower than the normal 20 mm/Hg. Recently, after overcoming many technical difficulties, Beckman[8] was able to determine the carbon dioxide in expired air by means of a direct reading apparatus. Although this instrument is not yet available for practical use, there is no doubt that it will be of great value to clinicians. Incidentally, numerous recent careful studies have demonstrated a remarkable similarity between functional hyperventilation syndrome and the "neurocirculatory asthenia," "effort syndrome," "soldier's heart" and "cardiac neurosis."

The simultaneous existence of hyperventilatory symptoms and organic disease presents a problem of differential diagnosis, which must be solved by determining that the hyperventilating manifestations are not entirely due to an organic condition, as cardiac or pulmonary "true dyspnea," encephalitis, or salicylate intoxication. Sometimes the organic disease has the same psychoneurotic etiologic factor as the hyperventilation, and may represent a further stage in an emotional conflict which has progressed from the stage of functional disorder to a well developed organic condition as peptic ulcer, ulcerative colitis, endocrine troubles, or obesity.

TREATMENT

The physician treating the patient with hyperventilation requires psychologic understanding and a confidence-radiating personality much more than scholarly medical knowledge. The "paper bag trick" has several advantages for treatment of the acute attack. It not only stops the attack with its manifestations so frightening to the patient, but it also confirms the diagnosis. Moreover, it controls the experimentally induced symptoms of hyperventilation and thus provides the physician with an opportunity to reassure his patient by proving that his symptoms are not imaginary, as he might have told on previous occasions and that his condition and its mechanism are fully understood. Finally, it educates the patient to improve his voluntary control of respiration. Usually, even the most anxious subject welcomes the "paper bag" demonstration which, by relieving his somatic complaints, prepares him for a better psychologic approach.

Various drugs have been advocated as capable of depressing the hypersensitivity of the respiratory center, without producing side effects on the higher centers or the mental faculties. Barbiturates, opiates, and ergotamine tartrate have not fulfilled these requirements. Recently, a benzodioxane compound, dibenamine (R), has shown promising expectations. When given in 250 mg. tablets three times a day, it seems to have significant results in the preparation of chronic hyperventilators for adequate psychotherapy and rehabilitation[9].

Among simple suggestions which could help either defer an acute attack, or improve a "pre-hyperventilation state" are: slow speaking, eating and swallowing; nasal instead of oral breathing; avoidance of forced breathing; and holding the breath temporarily, or rebreathing into a paper sack on appearance of initial discomfort.

The internist may detect the underlying emotional conflict by maintaining a confident attitude and friendly manner, by asking non-directive questions, and by skilful "observant listening," in addition to the routine thorough physical examination. With good insight into the patient's psychic problems and his temperamental reactions, the physician will have sufficient data to decide whether psychiatric treatment is needed. In patients who need it, psychotherapy must be started as soon as possible, and only by a competent specialist[7].

SUMMARY

Review of the complaints of 200 patients with functional hyperventilation indicates that the syndrome has no single constant clinical manifestation but rather a varied clinical picture. The most frequent symptom, breathing difficulty, was a complaint of over two-thirds of the patients in the series. The usual clinical pattern of the acute form consists in breathing difficulties, paresthesia, dizziness, giddiness, and a sensation of impending fainting. The importance of proper medical management of potential or chronic hyperventilators, in whom an "emergency protective reaction" is converted into a complex set of psychosomatic symptoms, is emphasized.

TABLE I

Distribution of Complaints of 200 Patients with Functional Hyperventilation

Complaint	*Male %*	*Female %*	*Total %*
Breathing difficulty	28.0	40.5	68.5
Nervousness	21.5	32.5	54.0
Dizziness, giddiness, unsteadiness, lightheadedness	21.0	19.0	40.0
Thoracic and/or precordial pain	17.5	19.0	36.5
Paresthesia	6.5	17.5	24.0
Fatigue	10.0	14.0	24.0
Anxiety	11.0	13.0	24.0
Palpitations	8.0	14.5	22.5
Weakness	10.0	11.0	21.0
Sensation of impending fainting	4.0	10.5	14.5
Vasomotor difficulties	1.5	6.0	7.5
Nausea, vomiting, or both	2.5	3.0	5.5
Fainting	1.5	2.0	3.5
Tetany		2.0	2.0
Visual difficulties		1.5	1.5

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Anent the Impact of Research and Education on Public Health*

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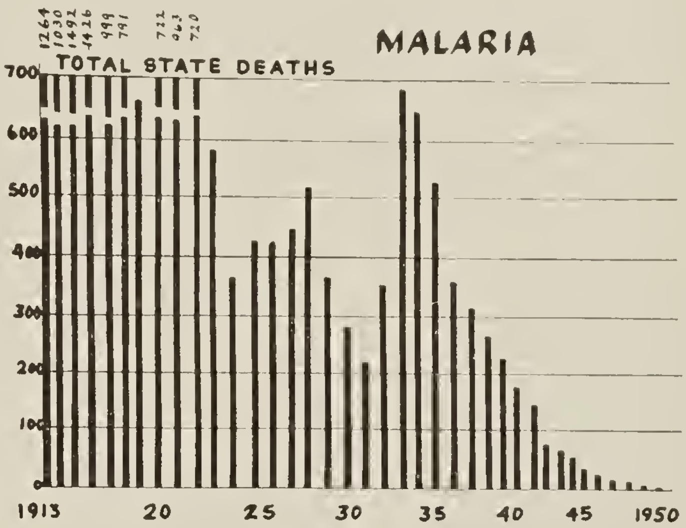
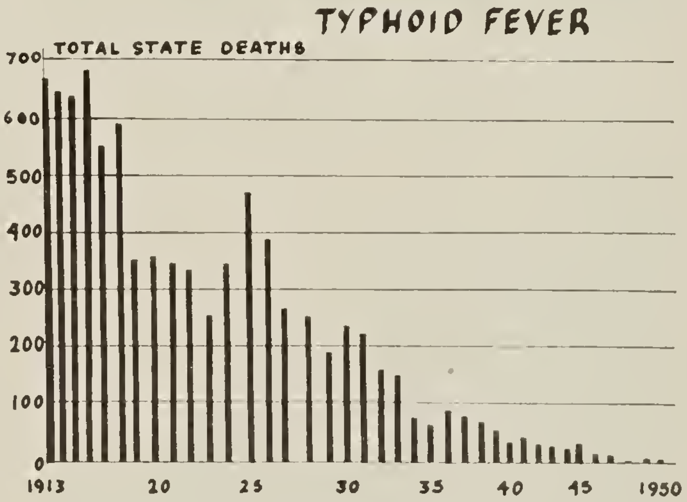
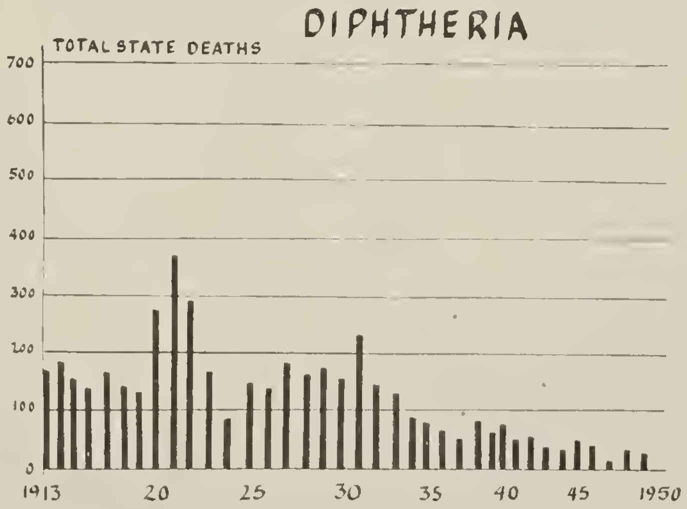
OFTEN I HAVE discussed the impact of public health practices on lowered sick and death rates. I reverse it this evening really to the impact of research and medical education on our public health. This impact of research and medical education on the health of our people has been so great in the past 50 years that its full measure cannot be given here in a few minutes. If the fruits of research could have been applied more rapidly without any lag by the medical profession and the public health workers of this state and country, much more progress would have been realized.

ALL THIS HAPPENED IN ONE LIFETIME

During my professional lifetime, the average life expectancy at birth was as low as 49 years. At the beginning of my professional career and for a number of years afterwards, infant and maternal mortality rates were high. Communicable and infectious diseases were prevalent and were frequent causes of death. Relatively little was done to prevent pollution of water supplies and food, and many large cities had open sewer systems, which, of course, were a shame and disgrace. It is only during recent years that leading citizens and officials of government (national, state and local) have recognized human resources as its most precious wealth. Our shift from an agricultural to an industrial economy carried with it an increasing number of health problems. High priority was given in the early years of public health and preventive medicine to *bacteriological research, training* and *demonstrations* in *environmental sanitation* and *inter-state cooperation* in *combatting the spread of many infectious diseases.* The contrast between the questions considered today in our medical and public health conferences and that of 40 or 50 years ago is a dramatic proof of the success of research and education in the health services. Specialists in bacteriology, immunology, epidemiology, sanitary engineering, pediatrics and obstetrics have greatly extended our knowledge of the causes of infectious diseases. The public health profession has developed techniques that in conjunction with improved standards of living and advances in the practice of medicine have almost eradicated the sources of many communicable diseases. Twenty years or more have been added to life expectancy at birth, and this







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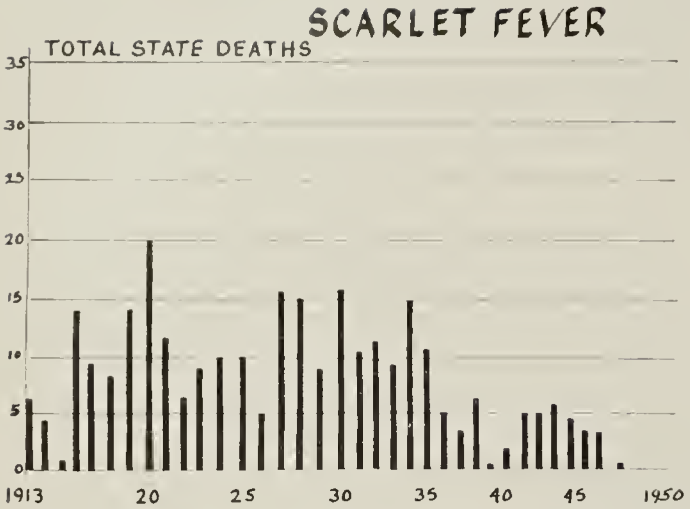
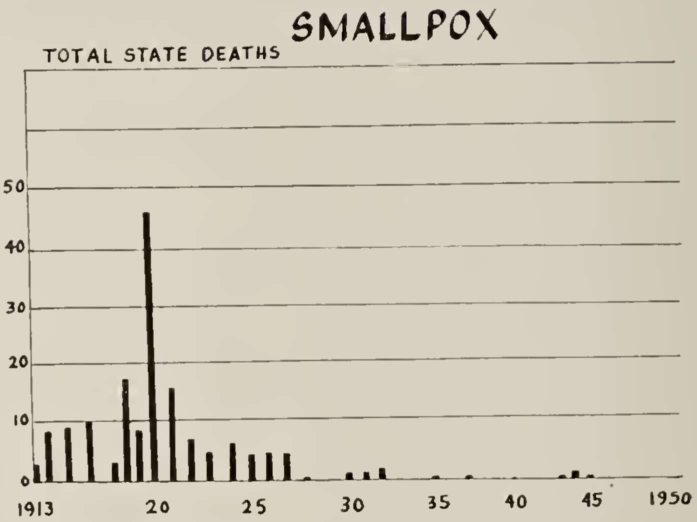
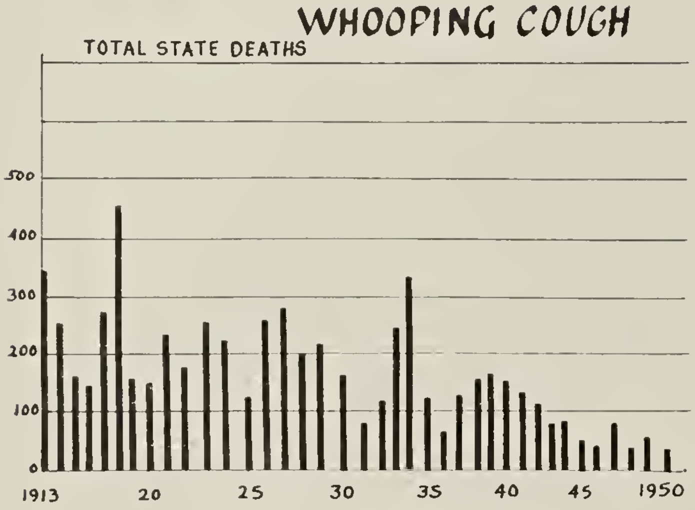
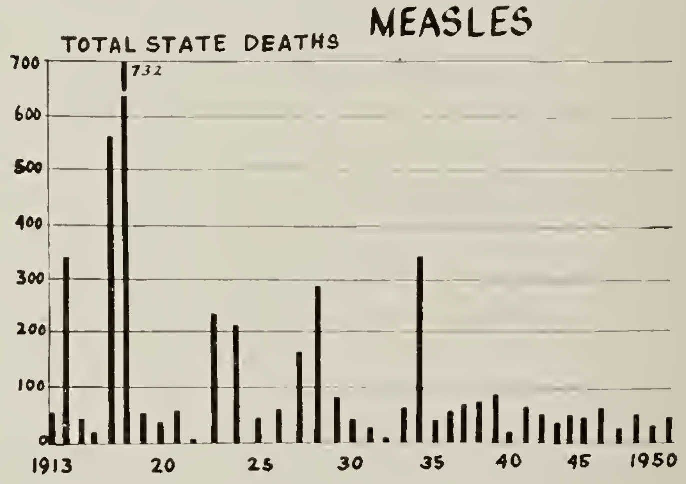
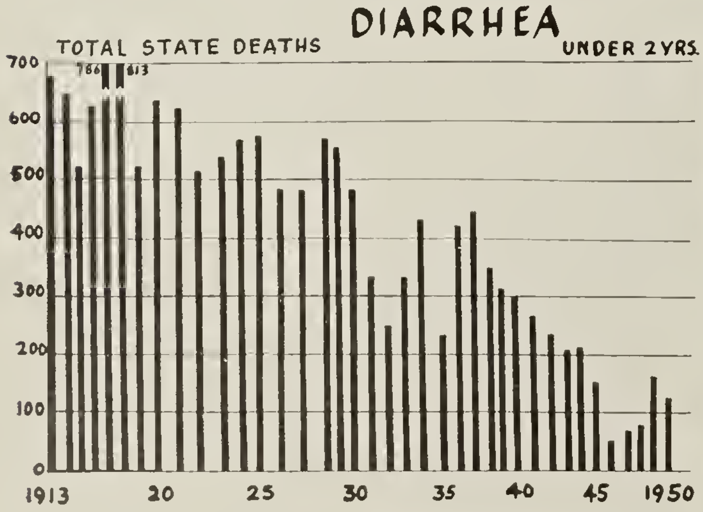
*Presented before the semi-annual meeting of the Clarksdale and Six Counties Medical Society, Clarksdale, Miss., March 24, 1954.

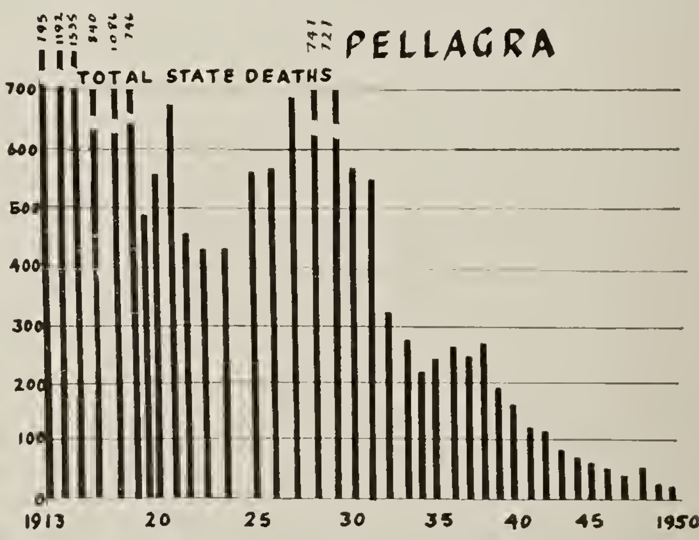


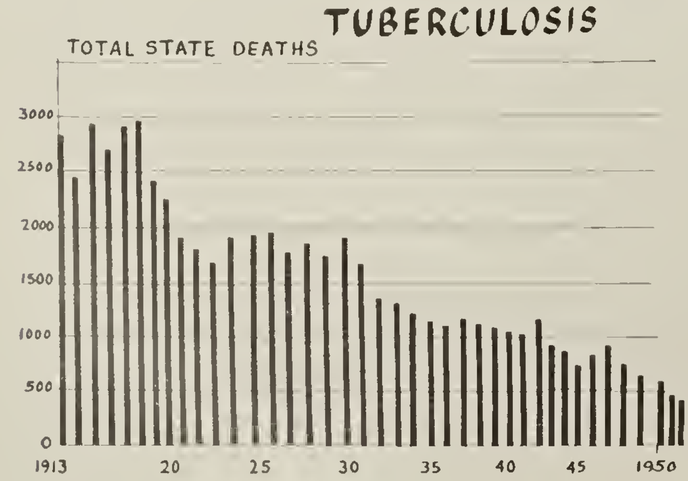










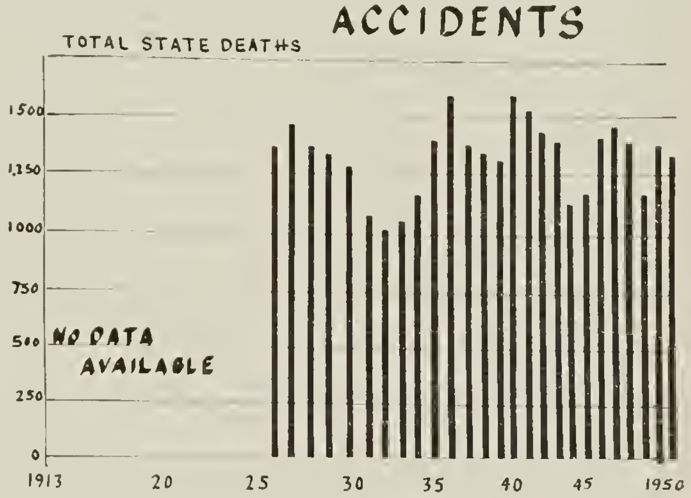


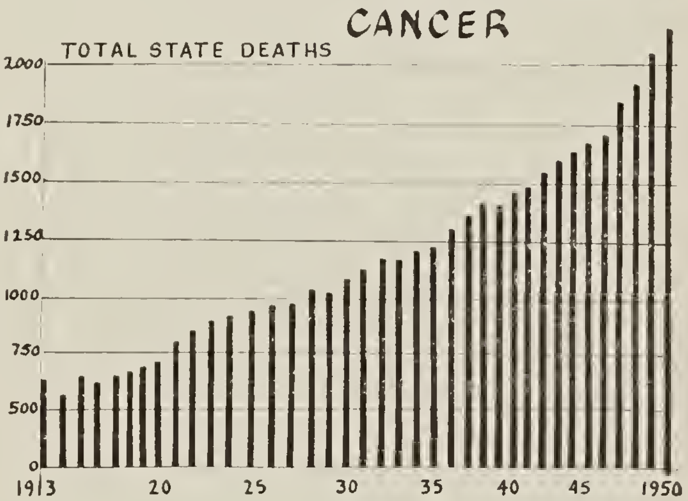
is being improved year by year. This achievement has resulted largely from declines in the *death rates for malaria, typhoid, diphtheria, scarlet fever, streptococci disease, whooping cough, diarrhea* and *enteritis, tuberculosis, smallpox, measles* and other infectious diseases and nutritional diseases such as pellagra, which formerly took the lives of so many young children as well as adults. (See tables)

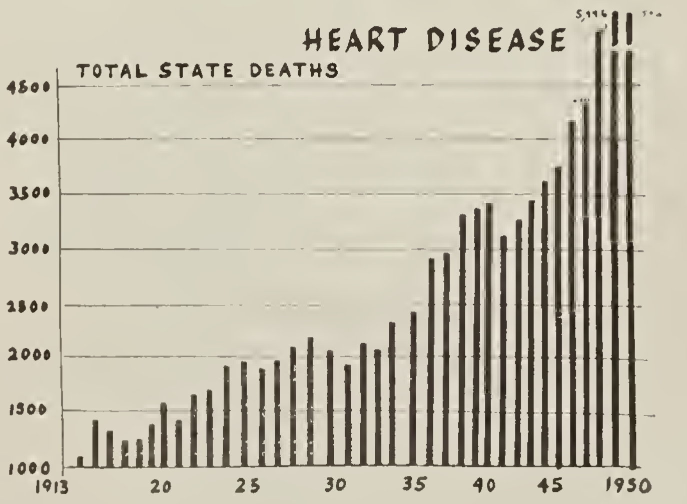
Primary emphasis in the early attack against infectious diseases was on prevention and detection. These preventive measures served to reduce the number of cases and carriers, thus decreasing the threat of epidemics. These measures for the prevention and detection of infectious diseases must continue with intensity, since some of them are still with us and would come back in force in a little while if we lowered our guard. Overall death rates do not tell the whole story. Specific therapy stemming from laboratory and clinical research and the development of anti-infective drugs which have further reduced death rates and lessened the hazards of serious and prolonged illness from infectious diseases is of comparatively recent development. The use of anti-infective agents has also aided in the prevention of certain diseases. These successes certainly are a source of pride in achievement and a source of confidence in health progress for the future. They must not be taken as a cause for relaxation of efforts, for infectious diseases such as tuberculosis and dysentery are still prevalent and tuberculosis is one of our important chronic diseases. Efforts must be continued on a selected basis to reach the irreducible minimum incidence of morbidity and mortality from infectious diseases. We must certainly not only hold our best gains, but gain some more ground. We must also find ways of using and extending our knowledge and experience in an attack against chronic and prolonged illness. The art and science of medicine and public health faces the complex problem of preventing, diagnosing, treating, rehabilitating and minimizing the effects of the chronic conditions that are now leading causes of death and disability in our state and country.

GREAT DESTROYERS OF LIFE AND HEALTH STILL REMAIN

In the early 1900s, heart disease, arteriosclerosis, cancer, diabetes and mental disorders received scant attention as public health problems, since only about 18 per cent of the population survived the hazards of acute infectious diseases to reach the age of 45. We just didn't live long enough then to be concerned about chronic illness. Only an extremely hardy 4 per cent then lived to celebrate their sixty-fifth birthday. These chronic diseases though found at all ages strike hardest in the later years of life. The proportion of the aged has now developed and is still increasing while well over 25 per cent of our population has reached or passed age 45 and half of the deaths occur in the age group of over 65 years. As a medical profession we need precise knowledge of the extent of the chronic disease problem. That knowledge can be gained by local, state and national surveys to derive estimates of the number of persons suffering from chronic illnesses and impairments. To enter into this kind of study, we would not be entirely unselfish, because even doctors often have chronic disease problems personally. I call your attention especially to three diseases that remain major disease problems at the present time — accidents, cancer and heart disease. Accidents are a major cause of death in all age groups literally from the cradle to the grave. Cancer, although found in the early age groups, destroys more people after the age of 40. Heart disease may occur also at any age but is most prevalent after the age of 45. The prevention of these three causes of







death are the greatest challenge that we face in the future. (See tables)

We must develop more effective means of early case finding, exact diagnosis, referral for medical treatment, follow-up, prompt rehabilitation and suitable employment for those who suffer from chronic illnesses. These measures will not only reduce human suffering and increase our manpower. but will also help to lessen the burden of public aid. Study of the recipients of the public assistance, for example, reveals the striking extent to which illness has made it necessary for people to seek public aid. Perhaps more prompt attention to their chronic illness might well have forestalled the incapacity for self-support in many of them. Of those drawing relief for permanent disability, 40 per cent in 30 states' reported that 10 years or more had lapsed since the onset of their major impairment. The size of old-age assistance rolls may be an indictment of our failure to preserve or restore and utilize the working capacity of the oldsters.

A pressing problem of the future is to keep as many aged and incapacitated people as possible out of hospitals and other institutions and to treat them in their homes where at all feasible. Many medical schools now give students an opportunity through home care and similar courses to observe and analyze the social and environmental factors in illness and to collaborate with nurses. occupational and physical therapists and medical social workers in caring for patients. This is as it should be, I think, and it is hoped that our University of Mississippi School of Medicine when opened in Jackson will begin with a good program of training in this field. Their graduates will be better doctors and the people will be better served. Our State Health Department certainly intends to collaborate with our medical school and other institutions training for the health professions by participating in research and in demonstrations of public health practice.

We have already begun in a most modest way in the field of heart disease control under Dr. Thaddeus D. Labecki whose work is attracting national attention in his modest research efforts in that field.

I have been your Director of Public Health in Mississippi for the past 30 years. On July 1 it was 30 years since I succeeded that public health statesman, Dr. W. S. Leathers, when he accepted the deanship of the Vanderbilt School of Medicine and established the Vanderbilt School of Public Health which he directed as long as he lived.

I am deeply grateful to the medical profession of Mississippi for working hand in hand with me, and I with you in giving Mississippi an outstanding public health program. The results speak for themselves as indicated in these charts which my public health statistician, Miss Margaret Rice, and Mrs. Ora Harris, illustrator, prepared for me.

Such results could not be accomplished by the medical and public health professions in the state working at cross purposes. We have worked together in peace and harmony and have wrought mightily for the best public health interests of all people of our state. I am proud of this record, and I know that you are. It is my earnest and devout wish that when I and you have passed on that those who follow us in medicine and public health will have the altruistic outlook that we have had shown during our sojourn here.

CANCER

Of all Americans who die of *all* types of cancer today, the deaths of one-third could be avoided, if proper treatment were begun before the cancers spread.

There is one segment of our population which serves as living proof for this statement. They are our *surgeons*.

A recent study showed that the cancer death rate among surgeons is only 66 per cent of the general rate, or one-third lower. Evidently surgeons not only have proper knowledge of the cancer facts, but they all act promptly on that knowledge.

The Problem, Current Control Efforts, and Future Needs in Mississippi in Tuberculosis*

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THE PROBLEM

Because of many recent reports in the newspapers and elsewhere describing the so-called miracle drugs, surgery, decreasing prevalence and deadliness of the disease, there is a growing tendency among the laymen and even physicians to count the fight against T.B. as almost over.

Such an attitude is most deplorable and dangerous. Rather the situation for control of the disease for the first time is not hopeless. The fact that there may soon be beds available for everyone who needs them for treatment and that some cases can now be treated at home does not mean that the fight is over but on the contrary that we are just now beginning to catch up.

We have, within the last few years, found two new weapons to use.

1. Antituberculosis biologicals and drugs making treatment outside of an institution, while not ideal, at least reasonable.

2. Surgery, especially various degrees of lung resection, is making more rapid cure possible, thus rehabilitating cases faster and rendering the advantages of institutional care available to a larger number of people.

These two new developments are about all the changes that have been made. These make good reading in newspapers but it still is rest, isolation, case finding, public education, nursing care, and eternal vigilance that form the sturdy background before which the more newsworthy characters perform and gain the applause.

It might be well to call your attention to a group of facts and figures which will help us better to understand the problem before us. First, it must be proudly admitted that vast strides have been taken and the deadliness of the disease is being reduced at a rapid pace through efforts now being made, however, before we get too smug let's look at these facts.

1. In the United States there are now about one million two hundred thousand people who either have active or inactive disease that requires medical supervision. This figure means that if all these people lived in Mississippi then more than every other man, woman, and child would be a T.B. problem.

2. There are now estimated to be between 400,000 and 500,000 active cases in the U. S. More important, however, is that it is felt that over half of these people are not aware that they have the disease, or are actively spreading it because of inadequate isolation, education, and supervision.

3. Here in Mississippi these are the facts. Between 1943 and 1953, there were 19,750 new cases of T.B. discovered. By comparison with estimates cited above there are probably that many more cases with T.B. that are not aware of it. Therefore, within the last 10 years there probably have been around 38,000 new cases in Mississippi.

4. Between 1949 and 1953 there was an average of 6000 cases in the Mississippi Tuberculosis Register kept in the T.B. Control Unit.

5. In 1952, 14 per cent of all cases in the Veterans Administration Hospitals in the U. S. were T.B. They numbered about 16,000 and were second only to the neuropsychiatric cases in number.

6. The deadliness of the disease has been rapidly reduced but there are in the U. S. about 24,000 deaths from T.B. annually. This runs to over 66 per day or around one every 20 minutes.

7. Tuberculosis still kills 15 per cent more people than all other infectious diseases combined.

8. Probably more important than any other is the fact that T.B. is still first as the cause of death in people between the ages of 15 to 34 years. Any disease that kills more of our young people in the most physically productive time in life is not a disease that has been conquered.

9. Financially it has been estimated that it takes $15,000 to treat each case successfully.

Less than 4 per cent can finance their own treatment. To control T.B. it costs the U.S. over $350,000,000 annually and the costs are mounting steadily since cases are living longer and hence requiring more care.

The above figures, derived from many sources, have a definite humbling effect. There is in spite of them room for optimism in facing the problem of control. However, this optimism is tempered considerably by the enormity of the task before us. One of the confusing factors is in the relation between curing the disease as shown by the mortality rate and the prevalence of it as reflected in the numbers of new cases being discovered.

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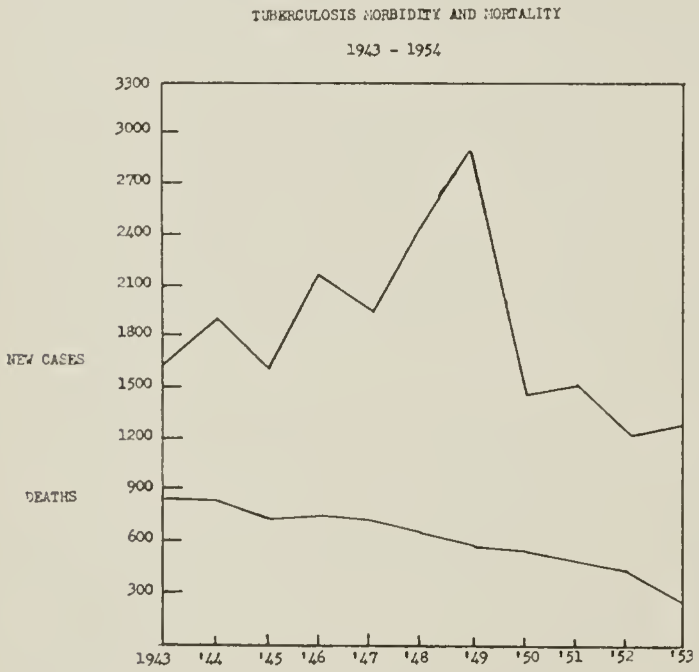
*Presented before the Section on Public Health and Hygiene at the eighty-sixth annual session of the Mississippi State Medical Association, Jackson, May 11-13, 1954.

Most of the emphasis in recent years has been directed at the amazing reduction in the mortality rate. From around 4,000 deaths annually in Mississippi 50 years ago, to less than 300 last year is remarkable. The reduction of the mortality rate is steadily falling, as a glance at Fig. 1 will show.

In the last ten years the death rate has been reduced from 887 in 1943 to 282 in 1953, a reduction of 605 deaths. This reduction in the deadliness of the disease is, we believe, due to earlier discovery and more effective methods of treatment.

It is of major importance, however, to call your attention to another fact shown in Fig. 1. This shows that while the deadliness is being rapidly and steadily reduced this is by no means the case with regard to the prevalence of the disease as reflected in the new cases discovered within the last 10 years. In 1943, 1,637 new cases were found, still in 1949, 2,621 cases were found. This does not necessarily directly reflect a more vigorous effort at case finding since in 1949 there were only 199,910 x-rays made where previously there had been about 295,906 yearly x-rays. That means more cases were found on fewer x-rays.



Reduced to its simplest terms this chart means that while we have good methods of treatment we still have no acceptable methods of prevention. Hence, control of the disease is in sight but eradication of T.B. is still hardly within dreaming distance. In fact, in 1953 it has been said that at the present rate of effort we can hope to eliminate the disease in 100 years.

TUBERCULOSIS CONTROL PROGRAM IN MISSISSIPPI

Fig. 2 shows the outline of the control program in Mississippi. Attention is called to the relationship between its several parts. Each is linked in both directions. That is, each factor can call upon the other and none is either completely independent of any other or altogether dependent upon another.

The Mississippi State Sanatorium is justly the central figure and the hub of the program. It is capable of caring for a total of 550 hospital cases of T.B. We in Mississippi are proud of this splendid Sanatorium, one of the oldest state institutions for T.B. in the country. It lacks no facility available anywhere else of proved benefit in the care of tuberculosis. Its main features are

1. Diagnosis
2. Isolation
3. Outpatient clinic for both diagnosis and treatment
4. Medical and Surgical Treatment
5. Prevention (Preventorium)

Perhaps the only ones of the above that are not self-explanatory are the Out-Patient Clinic and Surgical Treatment. The Out-Patient Clinic fills two needs. It serves as a diagnostic clinic where patients may be sent by any of the other three factors as they desire for the last word in diagnosis of tuberculosis. It also offers a weekly clinic for out-patients requiring bronchoscopy and bronchography for both tuberculosis and other chest conditions. It serves also as a check-up clinic for previously discharged cases.

Since thoracic surgery is assuming an ever-increasing important role in treatment of tuberculosis the Sanatorium now has a full-time qualified thoracic surgeon to attend to this important branch of therapy.

T. B. CONTROL UNIT

This started out on January 7, 1946, as simply a case-finding center. It, however, has rapidly expanded its horizon to include specialist advice to all requesting it with regard to handling cases and home treatment of tuberculosis. Centrally located in Jackson and at present run by a small staff, it acts as a liaison agent between the other three factors.

THE MOBILE UNITS

Number of units in 1946 were 4; they averaged 295,906 films yearly up to 1949.

Number of units in 1949 to 1953 were 3; they averaged 199,910 films yearly between 1950 and 1953.

Number of units in 1953 were 2; they took 166,197 films that year.

The mobile unit schedules are worked out by the advisory co-ordinator in health services in conference with the health officer and his staff.

The routine for handling films is as follows. If a suspicious change is noted on a 70 mm. mobile unit film, the county health officer is notified to request the patient to have a 14 by 17 film made, either by the health department or by a private physician if the patient wishes. This is sent to the Control Unit and if it is diagnostic or suspicious of tuberculosis or any other chest abnormality the patient's family physician is notified of this by the health department.

As mentioned before, the Control Unit is available to both health departments and private physicians for suggestions and advice in regard to their problems in the diagnosis and treatment. The Control Unit handles a large amount of correspondence and filing.

On file there are records of all current cases of T.B. filed both by name and by county. After a case has been inactive for 5 years the record is removed from the active files, and placed in the inactive file.

Between twenty and twenty-five thousand x-rays pass through the Control Unit monthly at the present and records of each film are kept in duplicate, one to the county health department and the other file at the Control Unit. Files of all T.B. cases found are kept permanently there.

COUNTY HEALTH DEPARTMENTS

The work horse in the T.B. Control Program is the county health department.

Before taking up their work we might mention two items of interest. First, we must pay respects to and thank the various county tuberculosis associations, a group of laymen, who handle the money obtained from the sale of Christmas Seals. A good part of this money goes to buy 14 by 17 x-ray film. This runs to around $30,000 per year.

The other is to remind you that the health departments are legally required to check up on every case of tuberculosis since it is a communicable disease. It is their responsibility to see that contacts are x-rayed, etc. This must be attended to and usually the private physicians understand and cooperate in this. If the private physician will assure the health department that he will take the responsibility for this, the health department is usually willing to turn it over to him.

1. X-ray. There are 75 regular sized x-ray machines in the county health departments in Mississippi. Seven counties have two machines and two counties have three machines. Harrison and Hinds counties have 70-mm. machines, Lauderdale and Hinds have 35-mm. machines also. It is the duty of the health department to take 14 by 17 films on all cases found in the mobile unit surveys to have suspicious lesions. When the suspicions are confirmed and a tentative diagnosis of T.B. is made through the Control Unit then the county notifies any physician named by the patient as his family physician.

2. T.B. Contact Check-ups. All direct contacts with patients diagnosed as T.B. are required to have a check-up film of the chest. These are usually carried out with ease and dispatch.

3. Sputum Examination. In order to be able to diagnose a case of tuberculosis beyond all question it is necessary to find the bacilli in the sputum. The county health departments check all suspicious cases in this manner usually through advice from the Control Center or at the request of the private physician.

All these specimens are sent to the Mississippi State Hygienic Laboratory in Jackson. The laboratory is equipped to run also cultures and animal inoculations for T.B.

4. Home Treatment of Tuberculosis. The great majority of county health departments in Mississippi now have a home treatment program underway. The health departments are willing to assume the treatment of indigent patients. They give the streptomycin and supervise taking the other drugs. Upon request of the private physician the health department will take over treatment of any of his T.B. cases. Most counties require such a request from the private physician be made in writing.

The cost of the drugs is carried by the tuberculosis associations and local civic groups.

5. Nursing Aid and advice. After a diagnosis of T.B. has been made, the public health nurse is required to visit the patient and observe the possibility of isolation, check upon the number of contacts, etc. She also gives advice on such matters as isolation and hygienic handling of the case. After the first visit she need not return if the private physician so requests, but it is as-

sumed that he will see to the above needs himself.

6. Treatment Clinics and Isolation Homes. Some counties (Hinds and Lauderdale) have isolation homes for tuberculosis. Hinds County has a clinic where treatment such as pneumothorax, pneumoperitoneum, aspirations, etc., is carried out.

PRIVATE PHYSICIANS

Tuberculosis has in the past been known as the "step-child of medicine." Physicians were interested only in two things, first to make a definite diagnosis and once this was made to hope that he would live long enough to go to the Sanatorium. With the new use of the anti-tuberculosis drugs this has changed entirely within the last two or three years. Sanatorium beds are much more readily available and treatment while waiting is now possible.

When the diagnosis of tuberculosis has been made, the private physician can, if he chooses, treat the patient with drugs. If he is so experienced he also might give one of the supplemental aids such as pneumoperitoneum, etc. He can very easily institute home treatment either with streptomycin and P.A.S. or second best give I.N.H. The latter requires only that the patient take two tablets per day, the above of course, while on rest, isolation, etc. He may call on the Sanatorium, county health departments, T.B. Control Unit for help. He might if he so desires turn the complete care over to any T.B. units described above except the T.B. Control Unit, since it has no facilities for treatment of any kind.

NEEDS FOR THE FUTURE OF TUBERCULOSIS CONTROL IN MISSISSIPPI

First, a continuation of the present facilities for detection and care.

Second, expanded county health programs for home treatment.

Third, to break down the prejudices among general hospitals in regard to admission of T.B. cases for surgery.

Fourth, more facilities for the medical and especially the surgical care of negro patients.

Fifth, more home treatment of tuberculosis.

Mississippi Tuberculosis Control Program

T. B. CONTROL UNIT

1. MOBILE UNITS
2. X-RAY INTERPRETATION
3. ADVICE FOR HOME TREATMENT

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MISSISSIPPI STATE SANATORIUM

1. DIAGNOSIS
2. ISOLATION
3. OUTPATIENT CLINICS
4. MEDICAL AND SURGICAL TREATMENT

PRIVATE PHYSICIANS

1. DIAGNOSIS
2. TREATMENT
3. REFERRAL OF PATIENT TO ANY OF THE OTHER UNITS OR TO ANOTHER PRIVATE PHYSICIAN.

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COUNTY HEALTH DEPARTMENTS

1. X-RAYS — 14 x 17
2. T. B. CONTACT CHECK-UPS
3. SPUTUM EXAMINATIONS
4. HOME TREATMENT
5. NURSING AID AND ADVICE
6. TREATMENT CLINICS

The Problem, Current Control Efforts, and Future Needs in Mississippi in Cancer Control*

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One needs but to glance at the statistics of death from cancer to appreciate the great problem facing us. Any disease that takes an annual toll of over 2,000 people—and cancer has done that for the past 5 years in Mississippi—and affects over 12,000 people is of major concern to research workers, public health officers, private physicians, and above all to the people who suffer and die from it.

A recent statistical study reported in *Public Health Reports* came up with these figures: "32 of every 100 newborn children may be expected to develop cancer at some time during their life." It is estimated that 50 million people now alive will develop cancer during their remaining lifetimes.

We are glad to report that Mississippi has recognized the problem, and the State Board of Health in conjunction with the Mississippi Division of the American Cancer Society has instituted a program which we feel is doing a very worthwhile job.

As a director of one of the cancer clinics in the state it is obvious from the cases seen in our clinic that a great many of the physicians of the state are not familiar with how the program operates. Speaking from a comparative standpoint, the Mississippi Division of the American Cancer Society is a young organization. When the Women's Field Army, which played such an important role in the development and work of the Society, came into being in 1936, Dr. Emma Gay of Biloxi was appointed State Commander for the State of Mississippi. It was not until the next year, however, that the first meeting of the State Committee for the Control of Cancer was held. At the request of this group, Governor Hugh White proclaimed the month of April as "cancer month." This was the beginning of the Mississippi Division of the American Cancer Society.

In 1939 a group of the medical profession and some interested lay persons met with an organization called The American Society for the Control of Cancer. But all efforts were finally merged in 1944 and the organization as we now know it came into being. In 1945 forty-one counties were organized and $20,000 were raised under the leadership of Dr. Felix Underwood who served as state campaign chairman. The following year interest in cancer control increased and steady progress was noted. The legislature earmarked an appropriation of $40,000 to the State Board of Health for cancer control, and a cancer unit was set up in the Division of Preventable Disease Control.

In July 1946 for the first time the U. S. Public Health Service was authorized to allot federal funds to the states for the establishment or expansion of cancer control programs. Within a few months after this federal aid became available, most states took steps to institute some type of control activity.

Since 1947 we in Mississippi have had funds available from 3 sources:

1. Mississippi Division of the American Cancer Society. These are funds which are raised in April of each year as part of the national cancer crusade. The national quota for 1954 is $25,000,000, and Mississippi's quota is $200,000. Of the funds realized through the April drive each year, 40 per cent are sent to the national office, 25 per cent of which are used for research at a national level, 15 per cent for education and administration at a national level; 20 per cent are returned to the local county units for carrying on service and educational programs; 40 per cent remain in the state to be used for treatment of patients, education programs at a state level and administration of the state office.

2. State funds appropriated to the State Board of Health for cancer control. The amount appropriated for the biennium ending June 30, 1954, was $110,000. The amount for the next biennium is $99,000.

Funds are also available for hospitalization of indigent patients through the state aid program. (Senate Bill 256).

3. Federal funds allotted to the State Board of Health. The amount appropriated for cancer control work was $113;380 for the biennium ending June 30, 1954. The public health service delegates that these funds be used for diagnostic purposes. Three days hospitalization are allowed for this purpose.

These funds are pooled by the State Board of Health and the Mississippi Division of the American Cancer Society to prevent duplication of effort and expenditures. It is from these pooled funds that the cancer clinics of the state are operated.

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*Presented before the Section on Public Health and Hygiene at the eighty-sixth annual session of the Mississippi State Medical Association, Jackson, May 11-13, 1954.

The clinics now participating in the program and approved as meeting the minimum standards set by the American College of Surgeons are:

1. The Central Tumor Clinic in Jackson which meets at the Baptist Hospital.
2. The Street Clinic and Mercy Hospital, Vicksburg.
3. The Lutheran Hospital, Vicksburg.
4. Doster Tumor Clinic in Columbus.
5. Gamble Brothers and Archer Clinic in Greenville.
6. West Tennessee Cancer Clinic in Memphis.

Because so many physicians do not seem to know the procedure for handling these patients, a brief summary will be given even though it may be repetition for some of you. Please keep in mind these are charity patients and on being accepted they sign a statement that they have no funds and have no means of obtaining funds for medical care.

On seeing a patient who has a malignant lesion or who has a suspected malignancy and who is unable to pay, the physician may fill out an application blank recommending this patient for treatment. And this, the physician's recommendation, is the only one necessary to get the patient on the cancer program. So this makes our job most important in ascertaining if this is a real charity case. Entirely too many cases are seen who are not truly indigent and when we expend funds on these, then many worthy needy persons are unable to be treated, as the demands on this program are always in excess of funds available.

The papers are sent by the referring physician to the Jackson office of the American Cancer Society, and here they are channelled to the proper clinic on a regional basis. The individual clinic then writes to the patient giving him an appointment on a specific day.

On reporting to the clinic the patient is seen by the group of doctors for diagnosis and treatment. Sometimes hospitalization is needed for the medical workup and three days hospitalization are often authorized for this purpose. Please remember many of these cases are longstanding when first seen and all factors, type of lesion, location, extent, metastasis, etc., as well as general condition of the patient, must be evaluated before treatment can be agreed upon. If definitive treatment is thought to be worthwhile—and x-ray and surgery are the only time-tested methods we have at present—it is recommended. But many cases are thought to be too far advanced for anything but palliative therapy and funds are not sufficient to enable the cancer society to pay for this type of treatment, so if you send a case in, and it is not treated, please remember this.

Following the clinic visit, the referring physician, the county health officer, and the central office in Jackson are sent a report of the clinic findings and recommendations. The report of the followup visits are treated in a similar manner. The central office in Jackson does not dictate how any clinic should operate. As long as the setup conforms to the minimum standards set by the American College of Surgeons it is free to handle each case as it sees fit unhampered by any rules other than its own. It is not within the scope of this paper to go into the methods of treating cases, as the treatment may vary according to the clinic to which they are referred.

Keep in mind that the physicians in the tumor clinics receive no pay for their clinic services nor for required surgery. Deep x-ray therapy is paid for on a cost basis which is roughly one-half the customary charge.

I have devoted most of my time telling of the operation of the cancer clinics but there are several other programs directed toward cancer. These are:

1. Promoting and assisting in developing terminal care for the indigent patients who have no prospect of cure and a rather short life expectancy.
2. Conducting a continuous educational program for the general public in regard to the dangers and early symptoms of cancer. We all know that it is only by early detection that we can cut down the deadly toll of cancer.
3. Supporting through proper committees of the State Medical Association programs of professional education in regards to the diagnosis and treatment of cancer.

This is a brief outline of the current control efforts. Future needs are always hard to evaluate as the picture insofar as diseases are concerned is constantly changing. Maybe by some miracle a cure may be found, but this is not likely to happen overnight but rather as a result of many, many years of steady progress. More than likely we shall keep an open mind in regards to new methods of treatment. An over-all plan should include both short- and long-term objectives. Short-term objectives should aim to save the maximum number of lives with resources and methods available. Long-term objectives should include research to discover the cause and ultimately the cure and prevention of cancer.

The Problem, Current Control Efforts, and Future Needs in Mississippi of Heart Disease Control

TOXEY E. HALL, M.D.*
Belzoni, Miss.

ANY PROBLEM such as heart disease control is of such magnitude as to be beyond the ability of the individual physician to cope with successfully without pooling the resources and coordinating the efforts of all who entertain the same objectives.

The role of cardiovascular disease as the number one cause of death is evident in the daily papers and almost daily in our own experiences.

The May issue of *J.A.M.A.* lists 32 member-physicians who have died recently of known causes. Twenty-five or 80 per cent of this unselected group died of cardiovascular diseases. There is no doubt but that the stress incidental to the study and practice of medicine predisposes to cardiovascular disease. By this token we may be assured that three out of four of us will eventually succumb to a cardiovascular disease.

In Mississippi heart diseases and deaths resulting from heart disease are increasing. From 1918 through 1952, according to the records in the statistical office of the State Board of Health, deaths from these diseases increased from 1,203 per year to 5,876 per year. Because of the control of communicable diseases, life expectancy has been increasing. Thus there are now more people in the older age group which sooner or later die with degenerative diseases. It is true also that some of our young people are suffering from rheumatic, congenital and other types of heart diseases; and that many middle-aged people, during their most productive and fruitful years, are falling prey to cardiovascular diseases.

If we were to adhere to the principle that the public health measures are practical and effective only if the exact etiological agent is known and preventive measures possible, then few conditions would qualify to receive aid on the community level, which is the chief concern of public health endeavor. The realization that certain measures instituted in time can bring fruitful results, even though in a number of conditions grouped as cardiovascular disease, the etiological agent is not known exactly; and that preventive measures can only be generally described as effective, prompted both the professional groups and the laity to decide that cardiovascular conditions belong to the field of public health and preventive medicine. That this is so is exemplified by the action of the Mississippi State Medical Association which, through its Advisory Heart Committee, assisted the Mississippi State Board of Health in setting up the heart disease control program, which has been in operation since 1950. Contrary, however, to the activities of such well-established phases of preventive medicine efforts as tuberculosis, cancer, venereal disease and mental disease control, the program does not concern itself with an individual patient, but aims at several points in the chain of events all contributing to the magnitude of the problem. And thus the Advisory Heart Committee of the State Medical Association outlined the following program which, with minor modifications, has been carried out from the inception of this unit, created within the administrative setup of Mississippi State Board of Health within its Preventable Disease Division.

Because of the progress as far as both the basic concept and the practical applications are concerned, it was thought that it might be of value to allow the practitioners to keep up with the latest in this field through both formal and informal approach. Under the formal was meant that periodic cardiovascular seminars would be organized with the participation of the physicians within the state whose training and experience qualify them to present formally papers dealing with the subjects in the specialty, and with out-of-state guests whose reputation and standing in the profession assure the Association of the greatest possible contribuiton. Four such seminars have been organized by the unit; then, because of the fortunate event of the creation of the Mississippi Heart Association, it was deemed advisable to yield this particular phase to the Association; which fact was also necessitated by considerable curtailment of the federal funds, which are the only source of support of this unit, there being no state funds allocated.

The second phase, which I described briefly to the members of the Association in my open letter to the editor of the *Mississippi Doctor* and which was published by Dr. Anderson in May,

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*Presented before the Section on Public Health and Hygiene at the eighty-sixth annual session of the Mississippi State Medical Association, Jackson, May 11-13, 1954.

1951, is essentially the informal contact with any physician or group of physicians in the state who request such service in the form of the medical consultant fully employed by the unit to work with them periodically in the diagnostic workup of patients who constitute the doctor's own clinical material. Such service is rendered to the doctors and never for the sake of substituting for a consultation with a privately practicing internal medicine specialist or a man limiting himself to practice in the realm of cardiovascular disease. The purpose is to aid the practitioner to realize the work that is being done in various phases of cardiovascular disease, such as the diagnostic workup and therapeutic possibilities in various types of congenital heart disease; the recent trends, pitfalls, shortcomings and advantages of various forms of therapy in hypertensive disease; the intricacies and difficulties connected with the diagnosis of rheumatic fever (especially in sub-tropical areas where the clinical manifestations are not as clear-cut as in northern sections of the country); and to emphasize the limitations of certain diagnostic procedures employed in the evaluation of the arteriosclerotic patients, and so on. The form which that service assumes varies from community to community, hospital to hospital, doctor's office to doctor's office. It may be utter informality, or it may assume the form of a presentation before a hospital staff on the subject chosen by the physicians attending. No records are ever kept on any of the patients who served strictly as clinical material, exemplifying the type of problems encountered in daily practice.

The professional value of this type of service has been great. The practitioner benefits by an association with a highly skilled cardiovascular specialist, has an opportunity to present his patient personally to the consultant, to observe the specialist's approach to the patient, examination, electrocardiography, and fluoroscopic examination, and to profit by their findings in the consultant's therapeutic suggestions. The consultant is thoroughly familiar with the best established and accepted procedures, though he is most conservative in his recommendations, keeping them within the patient's circumstances. There is no charge to either the patient or the physician for the consultant's services or electrocardiograms. However, the physician is privileged to charge the patient his own usual fee.

In order to keep up with the constantly advancing knowledge in the field, the medical consultant took it upon himself to visit recognized medical centers several times a year at his own expense, thus keeping abreast of those diagnostic and therapeutic problems which are of interest to physicians in our state.

The rough estimate shows us that during the last three-and-a-half years this phase of the activities took the consultant to 39 counties, 55 localities, discussing and working on this problem with over 150 physicians. Whether this has met with any success it is up to you to decide. I can only express my own opinion which was first conveyed to the fellow members of the Association in my letter to the editor of *Mississippi Doctor.*

Due to the fact that there exists in the state a considerable backlog of congenital heart disease which can be helped at this stage because of the existence of well-trained surgeons who have been contracted by the Mississippi Crippled Children's Service to render their services also to those who cannot afford to pay hospitalization and physicians' fees themselves are not insured under the voluntary health insurance programs like Blue Cross and similar plans. The medical supervisor of the Heart Disease Control Unit has been appointed field consultant of the Crippled Children's Service. Any child whose application goes through the county health department on the initiative of the family physician is to be seen by the consultant of the unit in the field to evaluate the case with the physician in attendance. Then the decision is made whether the case merits further diagnostic workup. If such be the opinion of the medical consultants acting on behalf of the Crippled Children's Service, surgery is performed by the surgical team.

The consultant of Mississippi Crippled Children's Service estimates that at least 60 per cent of cases worked up by the diagnostic team have been channeled through the efforts of the Heart Disease Control Unit. This speaks well for the efforts of that unit acting on the advisement of this Association.

Should the local physicians feel so inclined, they can refer children of preschool and school age to the county health department where the county health officer working with the local practitioners decides to include this type of service in his over-all program. Thus, in over 25 counties in the state periodic clinics are being held with the participation of the local physicians referring these cases, and the county health officer and his nursing personnel rendering this service to school children.

On the advice of the above-mentioned committee, it is the responsibility of the medical technologist fully employed by this unit to respond to the request of hospitals, clinics and private physicians to acquaint their technical personnel with certain laboratory diagnostic procedures which require greater than average degree of skill and perseverance. This is particularly true as far as prothrombin time determination is concerned, which is the only way to safeguard the safety of patients undergoing anticoagulant therapy. The technologist of the unit spent some time with Dr. Irving Wright in New York, one of the pioneers in this field, and thus is well qualified to be of help to the physicians and their technicians if they feel that they might profit by a short get-together with the representative of the unit.

On the advice of the Advisory Heart Committee, a long-range investigative project was instituted three years ago in the field of intimal atherosclerosis, more specifically on the relationship to it of fat metabolism, which is one of the factors contributing to the formation of atheroma, and the effect of certain nutritional factors on the prevention or acceleration of the process. As a result of the work the unit was invited by two national societies to present the results; this was done in 1952 in Washington, D. C., and in 1953 in Chicago. This work was abstracted and published in *Circulation* and the *Journal of Gerontology*. A scientific exhibit was also presented in 1952 before the Southern Medical Association. Three major publications now await printing, and the work is progressing along the lines set down by the Advisory Committee and the supervisor of the unit.

What are the future needs of the program? May I suggest that there be close coordination of the activities of the Heart Disease Control Unit with the activities of the Medical School of the University of Mississippi. It is also my hope that there will be even closer cooperation and collaboration between the Mississippi Heart Association and the Heart Disease Control Unit. That this is possible, practical, and desirable is exemplified by the joint efforts of the health coordinator fully employed by the unit whose task it is to deal with lay education in the form of sessions with science teachers, addresses before clubs, and other civic groups. This type of approach may not be spectacular on the surface, but it is possible that it may well bring results decades from now.

It is with a feeling of pride that we can all acknowledge that our state possesses one of the best public health organizations in the nation, and I dare say, in the world. It is also with pride that we should point out that, thanks to the joint efforts of the State Board of Health and the State Medical Association, we have one of the more active Heart Disease Control units actually in operation—not in the planning period nor on paper as may be the case elsewhere. This does not mean that everything is perfection, but it is most encouraging that in a new program and with a new concept of approach on the community and state level, that in the great majority of cases the personal prejudices, antipathies and preferences have yielded to the spirit of sincere cooperation between the individual physicians (who are and will remain the bulwark of the practice of medicine) and those who through mass-measures hope to contribute to the ever brighter picture in the passing parade of man's fight against disease.

Some of the grievances which John Q. has against the medical profession are:

1. Fees: They are too high; the middle class needs careful consideration.

2. Give of yourself to your patients .Spend more time with them; don't run them through like cattle; they're human beings.

3. Fee splitting: John Q. finds this slightly confusing.

4. Don't use educational expenses as an excuse for high fees. There are other people who have gone to school for ten or twelve years who can't command the salaries they should. . ."knock it off"!

5. Cut down on prescription writing. Give the patient what he needs to get well, but no more. No need to have medicine cabinets loaded with unused medications.

6. Don't keep your patients waiting too long in your waiting room. Their time is precious to them.

7. Be community minded. Be concerned over local conditions and try to help improve them when you see the need.

8. Clergymen are your best public agents. Use them, make them your friends and allies.

The Problem, Current Control Efforts, and Future Needs in Mississippi in Venereal Disease*

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Jackson, Miss.

During the past six years by my association with the Mississippi State Board of Health I have had the privilege of meeting or corresponding with many of you personally, therefore, I know first hand that there is a high index of suspicion of syphilis in unusual cases. This is of utmost importance as you are all familiar with Sir William Osler's quotation "To know syphilis is to know medicine." With the great strides in medical research especially in the antibiotics there is a tendency on the part of some to assume that penicillin will cure all genital lesions, meanwhile soothing their own consciences with the thought that it won't hurt the patient anyway.

Let me reassure you that darkfield examinations are not "last year's models" and that smears or biopsies for Donovan bodies are still quite useful in the early differential diagnosis of syphilis, granuloma inguinale, chancroid, lymphopathia venereum and lesions of other etiology, especially in those individuals who have on previous occasions been found to be a part of our venereal disease reservoir and still have a positive serologic test for syphilis.

I feel that it is actually criminal negligence to treat a patient for "latent syphilis" without performing a spinal fluid examination to rule out neurosyphilis which potentially may progress to paresis or optic atrophy, etc., that causes the patient to be a menace at the wheel on the highway or with some machinery on the job. It is quite a simple matter to explain the need for the procedures, also to explain the simplicity of the tests thereby eliminating the patient's fear which produces the occasional headache that we see following lumbar puncture. Another important thing regarding spinal tests is to avoid the use of the word "spinal" and if the patient should ask, "Is this a spinal?", I feel that the best answer is "That is not a spinal shot, since no medicine is put in; it is merely a test." You will be surprised how much better the patient gets along.

It is not surprising that the incidence of granuloma inguinale has declined with our improved sanitation and the competitive extensive advertising campaigns of the various soap companies. Even the filthiest of our patients get exposed to our improving sanitary conditions, slow as it may seem. Thus the other venereal diseases are also mildly retarded in their spread for the same reason.

If education can ever be expected to lead us from the "dark" by the "light of knowledge," then we must not expect to "drive out" disease without extensive *leading* to treatment every known case *plus leading* their known contacts to observation and treatment for their disease when diagnosed or prophylactic treatment if indicated. Most physicians are so busy now that there is a tendency to slight or even entirely omit epidemiologic interviews with venereal disease patients. Some interview and record contact names on the patient's record but go no further unless the patient's contact happens to come in. Most of our county health departments have the services of a trained interviewer-investigator available. These venereal disease investigators also may assist the private practitioner, who has a venereal disease case needing interviewing, upon the request of the physician to the health officer or to the investigator directly where previous arrangements have been made. It is needless to say that with such cooperation between the private practitioners and the health departments continuing to improve, there will be no need for syphilis to return as a civic or national disgrace even with the reduction of funds that at present is feared by many to represent a re-enactment of Pandora's opening the box in mythology.

A joint statement of the Association of State and Territorial Health Officers, American Venereal Disease Association, and the American Social Hygiene Association is: "Present allocations of public funds are inadequate to deal with the size and complexity of the control problem." This is certainly the case in Mississippi, yet some would reduce the State Board of Health's funds even more were it not for realization of the benefits of the over-all program and the venereal disease portion specifically by the majority of the legislators, especially some who lived in the Delta section and have seen first-hand results in their own tenants.

Despite great strides in venereal disease control, complete control is not eminent for the nation and the same is obvious for Mississippi since it is one of the states showing a rise in venereal disease rate for the first three months of 1954. The following table of venereal disease morbidity illustrates the progressive decline in total syphilis and in primary and secondary syphilis, but little change in gonorrheal reporting. It is interesting to note that in 1947 there was a sudden drop of approximately 50 per cent in venereal disease cases reported in Mississippi when reporting by name was instituted, although that year was the peak year of venereal disease incidence for the nation.

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VENEREAL DISEASE MORBIDITY SHOWN BY DISEASE-DIAGNOSIS AND REPORTING AGENCY BY CALENDAR YEARS——1944 THROUGH 1953

Calendar		*Pri. & Sec.*			*Early Latent*			*L. L. & L*			*Congenital*			*Gonorrhea*			*Other V.D.*		
Year	*—Total*	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
1944	23,066	8022	1392	6519	6624	3511	3103	7206	2848	4336	1214	667	547	31,202	5746	24,998	885	170	711
1945	22,989	8004	2641	4537	7633	4520	3066	6407	2484	3862	945	513	430	35,152	9862	22,438	1024	449	556
1946	23,541	9672	3909	5514	6750	3499	3201	6027	1940	4070	1092	580	454	46,172	15,264	29,390	1341	691	625
1947	12,141	4247	3876	371	4364	3941	422	2783	2510	272	747	728	19	18,062	15,672	2,390	907	839	68
1948	10,944	2584	2357	227	3566	3190	286	3993	3775	218	801	779	22	10,685	9595	1,170	565	540	25
1949	11,905	1703	1328	375	2882	2570	312	6257	5822	435	1063	1019	44	11,012	9798	1,214	671	645	26
1950	11,360	900	675	225	2459	1977	482	6246	5552	694	1755	1683	72	12,774	11,684	1,090	422	403	19
1951	6,284	494	404	90	1287	1040	247	3512	3042	470	991	894	97	10,287	9220	1,067	249	235	14
1952	4,329	258	203	55	650	485	165	2907	2426	481	514	473	41	9,226	8496	730	240	218	22
1953*	2,936	168	118	50	465	348	117	1920	1505	413	383	368	15	8,677	7929	748	153	145	7

(1) Total (2) Clinics (3) Private Physicians-Source: Clinic Monthly Reports and Morbidity Reports
*Projected Figure for Full Year Based on Reported Figures for 10 Months

The actual prevalence of syphilis is difficult to define without complete blood testing of the population. This is impractical. Furthermore, it has been shown by our selected surveys including house-to-house surveying, that the very groups in which the prevalence is highest are more apt to avoid the various types of case-finding projects to determine prevalence. Therefore, it is well to recognize that despite decreases in the *apparent* number of venereal disease cases in the state (as well as the nation), we may not be finding more than a fraction of the cases that exist, particularly in areas where venereal disease is known to be highly prevalent.

Now that we realize we must use every method of case-finding to maintain control, we may turn our thoughts to treatment which in the recent past still consisted of weekly injections of arsenicals and heavy metals usually over a period of eighteen months to two years. Unfortunately only 25 per cent of these patients completed such a schedule, therefore, case-holding was a tremendous problem. It is very fortunate that the advances in antibiotic therapy have been both rapid and apparently successful or therapeutically sound, for now case-holding can be essentially disregarded with the new one-shot treatments. Reinfections are now more obvious and relapses much less frequent. The period of infectivity is perhaps shorter now due not only to the better therapeutic agents but also to better contact tracing, which has resulted from freeing the venereal disease investigators from the laborious task of case-holding.

In conclusion, the State Board of Health has integrated the foresight and enthusiasm of its leaders and other personnel with the stamina of the local health department workers together with the cooperation of the medical profession to *recognize* the complexity and extent of the venereal disease problem, namely: the second highest positivity rate for persons examined for Selective Service in World War II and the lowest per capita income of any state in the union; to *visualize* the ever-changing nature of the components of control measures which have crystallized intó our one-day service of diagnosis, treatment and epidemiology on an out-patient basis at the Prevention and Control Centers; and *finally to achieve* the proximity of successful control. It remains the ever-increasing need to retain the integrity of the control program by continuing allocation of adequate funds at all levels for Public Health Departments to participate, also by the continued cooperation of the medical profession and needless to say the continued public interest in and support of such programs.

ANNOUNCING

The Eighteenth Annual Meeting of

The New Orleans Graduate Medical Assembly

Conference Headquarters — Municipal Auditorium

MARCH 7 - 10, 1955

GUEST SPEAKERS

Donald H. Stubbs, M. D., Washington, D. C.
Anesthesiology
Marcus R. Caro, M. D., Chicago, Ill.
Dermatology
Joseph B. Kirsner, M. D., Chicago, Ill.
Gastroenterology
Willis E. Brown, M. D., Little Rock, Ark.
Gynecology
Tinsley R. Harrison, M. D., Birmingham, Ala.
Internal Medicine
Donald W. Seldin, M. D., Dallas, Texas
Internal Medicine
William A. Sodeman, M. D., Columbia, Mo.
Internal Medicine
Leonard T. Furlow, M. D., St. Louis, Mo.
Neurosurgery
Thaddeus L. Montgomery, M. D., Philadelphia, Pa.
Obstetrics
F. Bruce Fralick, M. D., Ann Arbor, Mich.
Ophthalmology
George J. Garceau, M. D., Indianapolis, Ind.
Orthopedic Surgery
Jerome A. Hilger, M. D., St. Paul, Minn.
Otolaryngology
William Boyd, M. D., Toronto, Canada
Pathology
Louis K. Diamond, M. D., Boston, Mass.
Pediatrics
H. Dabney Kerr, M. D., Iowa City, Iowa
Radiology
B. Marden Black, M. D., Rochester, Minn.
Surgery
Charles B. Puestow, M. D., Chicago, Ill.
Surgery
Hugh J. Jewitt, M. D., Baltimore, Md.
Urology

Lectures, symposia, clinicopathologic conferences, round-table luncheons, medical motion pictures, scientific exhibits and technical exhibits.
(All-inclusive registration fee — $20.00)

THE POSTCLINICAL TOUR TO EUROPE BY PLANE AND SHIP

Departure from New York, March 12
For information concerning the Assembly meeting and the tour, write Secretary,
Room, 103, 1430 Tulane Avenue, New Orleans 12, La.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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EDITORIALS

DOCTORS AND GOD

Any doctor "who lacks faith in the Supreme Being" has no right to practice medicine.

That challenging, unequivocal assertion by Dr. Elmer Hess, president-elect of the American Medical Association, coupled with other things that he had to say about spiritual values, comes as a rebuke to those who somehow take it for granted that medical science and spiritual beliefs are strangers. Actually, one complements the other—or should!

Dr. Hess made his convictions clear in an address at the recent annual meeting of the Southern Medical Association. "A physician who walks into a sickroom is not alone," the Erie, Pa., doctor told his colleagues.

"He can only minister to the ailing person with the material tools of scientific medicine—his faith in a higher power does the rest."

"Our medical schools are doing a magnificent job of teaching the fundamentals of scientific medicine. However, I'm afraid that the concentration on basic science is so great the teaching of spiritual values is almost neglected." It is not, we believe, neglect through choice.

Offhand we could name no physician of our acquaintance who would admit atheistic convictions or who would attempt to claim that the knowledge he possessed was all-sufficient. On the contrary, two of the greatest surgeons we have ever been privileged to know not only had a complete faith in the existence of a Supreme Being, but were utterly convinced that human life had continuity reaching beyond the grave. Needless to say, they enriched the lives of all to whom they ministered.

If the healing arts have divine origin, as we believe they do, every doctor is a healer of souls as well as bodies. He could scarcely be one without being the other, and we are grateful to Dr. Hess for what amounts to both a profession and confession of faith and one which will be of extraordinary comfort to all who look to the man of medicine for help and guidance.

The above editorial appeared in a recent issue of *The Commercial Appeal* which has had much to do with building the mid-South for the last hundred years. When Dr. Elmer Hess, elevated to the presidency of the SMA, delivered his address he opined that a doctor who does not acknowledge belief in and dependence on God, is not fully prepared to practice medicine. Such a belief implies a responsibility to one's fellowman beyond the professional obligation. It means that a doctor must learn to estimate human values as well as to diagnose and treat disease. It means that his aim should be to build, or help to build, a citizenship, adequate to meet all problems that beleaguer human society. It means he strives to live his beliefs as well as to declare them. Real health assets are composed of physical, mental, and spiritual values. Prevention plays a significant role in building all. The prevention of spiritual debacles is one in which the medical profession can assist, but the doctor is impotent if he has little faith himself.

ITS FUTURE IS UP TO US

"Better to staff our medical school with mediocre instructors who do not teach, than with first-rate medical men who are permitted private practice." "When a man is employed to teach surgery in a medical school, he should first have his hands cut off." These two remarks were recently heard in a medical group. We do not believe in either. A medical school is just as good as its teaching strength. A mediocre faculty is not what Mississippi needs for its school. And the man who teaches live surgery will be out of date in five years if he does not keep the scalpel in his hand.

Every doctor in the state will most likely have cases that should be referred to the central hospital for treatment and for teaching purposes. The general public and the legislature must cherish this medical school and be liberal toward it. Every doctor should be on the giving end of the line that the school may be well established. Its reputation rests on these infant years.

WE SHALL NOT LOOK UPON THEIR LIKE AGAIN

The State Medical Association and the Fifty-Year Club recently lost two of their most beloved men—Dr. G. S. Bryan and Dr. W. W. Crawford.

Dr. Bryan was spoken of as the sage of medical circles in our state. He was one of the first to operate for appendicitis in this section. For multiplied years he was especially interested and active in the cancer problem. He served as president of the State Medical Association and always gave very liberally of his time for organized medicine. He was a constant reader of medical literature. Dr. Byran was devoted to his home and he loved his church. Surely no man ever had two daughters more persistent in their attentions to their father. He was a doctor-citizen outstanding in every way. He possessed courage not found in very many men. He was a friend who could know all about you and love you still. Blessings on his memory.

Dr. W. W. Crawford of Hattiesburg charged the medical atmosphere of the southern half of our state for many years. He served as president of the Mississippi Medical Association and was one of the founders of the Southern Medical and served as one of its outstanding presidents. Dr. Crawford was a general surgeon of first rank and among the first to gain recognition in surgery in our state. He possessed surgical knowledge and wisdom and skill. Dr. Crawford was outstanding for his medical integrity. He had the courage to meet issues in the medical profession and as a citizen, but thought through the facts very carefully. He honored the medical profession by every measure. He was devoted to his home and his church. In the going of Dr. W. W. Crawford, the state lost a great medical soul. It was both profitable and inspiring to know him as a friend.

Someone asked the question, "What is a jury?," to which another answered, "Twelve men selected to tell which side has the best lawyer."

SALAAM

Dr. and Mrs. M. Y. Dabney have done a wonderful job editing the *Southern Medical Journal.* They have made it one of the best scientific organs ever published. "If you are to be well dressed, dress so as not to attract attention." They have been so smooth and so thorough in their work the excellence of their services was taken for granted. The Southern Medical Association owes them a debt of gratitude that can and will not be paid in money. They must have great satisfaction, knowing how ably and how conscientiously they have served. Dr. and Mrs. Dabney are liberally educated in the fields of science and literature and made an inimitable team. We wish to add our salute and "well done" to the many expressions of appreciation to them.

FIFTY-YEAR NURSES

The doctor and the nurse have worked together to combat disease, to bring succor to the patient, and to inspire him to overcome his illness. Too much can not be said of the nobility and the unselfish services of the registered nurse in our state over the last half century. A few days ago one of the choice spirits of them all passed to her reward, Miss Ozella Thomas of Booneville. Forty-five years ago she received her R. N. degree from the Street Hospital in Vicksburg. And for forty-five years she rendered untiring service to the sick of northeast Mississippi. Her nursing integrity, her desire to serve, her devotion to duty with or without pay has rarely been equaled and certainly not surpassed in this section. She was loyal to the doctor and a stickler for carrying out his orders. She possessed ingenuity and resourcefulness and could do well with what she found at hand in the home or in the hospital. Miss Ozella Thomas built her own monument out of personal and professional service. It will not crumble.

Miss Ozella had not reached her fifty years of service, but we are sure that we have R. N.s in our state who have served for a half century who are of the type of Miss Thomas. We would like to suggest to the nurses of our state that their organization form a fifty-year club and issue certificates and pins to reward these faithfuls.

The Northeast Mississippi Medical Society meets in Tupelo the second Tuesday in December, the last quarterly meeting for the year. Tupelo is a fine place to meet. The TKE Drug Company are royal hosts at the banquet.

POLIO NEXT?

The science of medicine has traveled a long way since the time of Hippocrates, 358 B.C., and half of this distance within the last fifty years. Two thousand years ago life expectancy was twenty years, a hundred years ago it was forty, now it is seventy. Volume of life is greater also. Many diseases have been conquered within the last fifty years. Cancer, polio, heart—these three give us greatest concern today. The polio vaccine points an encouraging finger toward ultimate victory over this dread disease. The plan to vaccinate again next year on a large scale indicates progress. It will be a great day for medical science when polio is no more. There will be no let-up from any direction until this is accomplished. We must be patient, yet active and cooperative until victory is ours. The medical man may be helpful to the man doing the research by making closer observations and reporting them. He can encourage a trusting public and stimulate fund-raising until polio is whipped.

News and Comment

PREPARE TO ATTEND THE MID-SOUTH

You will note the program of the Mid-South Medical Assembly in the ad section in this issue of the journal. It is a good program. This organization is the father of such programs. Memphis is a great city in which to meet, the Peabody Hotel is ideal for the assembly. Memphis, now claiming the largest medical school in the nation, provides a wonderful medical atmosphere. Mark the dates for the Mid-South and make your reservation. In many ways it will be good to be there.

DR. LANE TO BMC

Dr. Virginia E. Lane has been engaged as resident physician of Blue Mountain College.

Dr. Lane is a native Virginian and holds her bachelor's degree from the University of Richmond. She then attended the Training School of the Southern Baptist Theological Seminary in Louisville, and after completing her work there she secured the degree of Doctor of Medicine at the Woman's Medical College of Philadelphia. She interned in the Women's Hospital of that same city and was then in general practice for six years. For several years she was physician at the Northfield School for Girls in Massachusetts. From 1946 to 1954 she was college physician at the Mississippi State College for Women, Columbus.

DR. SANDERS HEADS SMA

At the annual meeting of the Southern Medical Association in St. Louis, Nov. 8-11, Dr. R. L. Sanders of Memphis was installed as president, Dr. W. Raymond McKenzie of Baltimore as president-elect, and Dr. J. P. Culpepper of Hattiesburg as first vice-president. Dr. M. Y. Dabney and Mrs. Eugenia Dabney resigned as editors of the journal, and Dr. Kampmeir of Nashville, Tenn., comes in as editor to take their place. Robert Butts comes in as executive secretary, while Mr. C. P. Loranz is retained in an advisory position. The next meeting of the Southern Medical will be held in Houston, Texas, the largest city in population of the South.

TULANE OFFERS COURSE

A postgraduate course on Venereal Disease for Practicing Physicians is to be offered January 31 - February 4, 1955, by the Division of Graduate Medicine of Tulane University School of Medicine with the cooperation of the United States Public Health Service. All aspects of the venereal disease problem will be covered by nationally known authorities in this field. The course is approved by the American Academy of General Practice and no tuition fee will be charged.

Further information can be obtained from the Director of Graduate Medicine, 1430 Tulane Avenue, New Orleans 12, Louisiana.

AMA INSTITUTE

The AMA's Public Relations Institute in Chicago September 1 and 2 attracted almost 300 state and county medical society representatives. Among those attending the "crackerbarrel Institute" from Mississippi were Cummings H. McCall, M.D., President, Rowland B. Kennedy, Executive Secretary both from the Mississippi State Medical Association, and Mrs. Cummings H. McCall, Woman's Auxiliary to the Mississippi State Medical Association.

The Institute, planned primarily for lay executive and PR personnel, M. D. chairmen of PR committees, and Auxiliary PR committee women, was the most successful ever held. The two-day meeting featured experts in medical television production, direct mail promotion, AMA services, medical fees, the role of medical assistants, medical motion pictures, and inter-organizational cooperation.

Because of the large and enthusiastic attendance, almost every problem confronting medical societies was discussed, and the meeting provided many suggestions and approaches to a successful and thorough medical public relations program for each society.

This cooperative spirit at the Institute displayed the united front of nationwide medical public relations, and the reported "success stories" were convincing proof that the programs of medical societies were winning the increased understanding and friendship of the public.

VAN METER PRIZE AWARD

The American Goiter Association again offers the Van Meter Prize Award of three hundred dollars and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the Association which will be held in Oklahoma City, Oklahoma, April 28, 29 and 30, 1955, providing essays of sufficient merit are presented in competition. Send to the Secretary, John C. McClintock, M.D., 149½ Washington Avenue, Albany, New York.

FLORIDA MID-WINTER SEMINAR

The ninth annual University of Florida Midwinter Seminar in Ophthalmology and Otolaryngology will be held at the Sans Souci Hotel in Miami Beach the week of January 17, 1955. The lectures on Ophthalmology will be presented on January 17 and 19 and those on Otolaryngology on January 20, 21 and 22. A midweek feature will be the Midwinter Convention of the Florida Society of Ophthalmology and Otolaryngology on Wednesday afternoon, January 19, to which all registrants are invited. The registrants and their wives may also attend the informal banquet at 8 p.m. on Wednesday. The Seminar schedule permits ample time for recreation.

The Seminar lecturers on Ophthalmology this year are: Dr. William F. Hughes, Jr., Chicago; Dr. Phillips Thygeson, San Jose; Dr. James Allen, New Orleans; Dr. Walter H. Fink, Minneapolis; and Dr. Milton L. Berliner, New York. Those lecturing on Otolaryngology are: Dr. Paul Helinger, Chicago; Dr. Lawrence R. Boies, Minneapolis; Dr. Edmund F. Fowler, Jr., New York; Dr. Arthur W. Proetz, St. Louis, and Dr. David D. DeWeese, Portland, Oregon.

ANNOUNCEMENT

Rush E. Netterville, M.D., George Gillespie, M.D., and Raymond Martin, Jr., M.D., announce their association for the practice of surgery, general and thoracic at their new location, 514 E. Woodrow Wilson Drive, Jackson 3, Mississippi.

PEDIATRICS

HARVEY F. GARRISON, M.D.

A Successful Treatment for Infantile Eczema. F. D. Nance. Hawaii M. J. 13:452-453 (July-Aug.), (Honolulu, T. H.)

Nance shows that the only successful treatment of infantile eczema is prevention. He presents histories of two infants to illustrate the typical preliminary history of an eczema problem and to show the preventive treatment. The preventive treatment may be summarized as follows: 1) Inquire into the family history as a possible eczema problem. 2) Encourage breast feeding whenever possible, especially in allergic families. 3) Give no artificial formula to any infant under the age of 3 days. 4) Recognize allergic colic when it occurs and treat it as such; consider every such case as a probable eczema problem. 5) Start no complementary foods in these children under the age of 3 months. 6) Introduce new foods, one at a time and in small amounts. 7) Use no mixtures of foods, such as the "mixed" cereals or the multiple compounds of meats, vegetables, and cereals. 8) Stop the most recently added food if eczema occurs. If it persists, go back to the base diet—milk or milk substitute—alone. If eczema still persists, change the base diet. The use of this system over a 10 year period has had the result that no severe case of eczema has occurred among the treated children in a practice that includes an average of 8 to 12 new cases of severe eczema per year among infants not cared for from birth. The system is based on two beliefs: 1) that food sensitivity is the original cause of infantile eczema, and 2) that the younger an infant is, the more easily he is sensitized. In commenting on the rule "no formula under three days, and no complementary foods under the age of 3 months," he says that food sensitivity is presumed to be acquired by absorption of unchanged protein through the intestinal wall. Experiments have shown that blood plasma given by mouth to an infant in his first day of life will appear in the blood almost as rapidly as though it were given by vein. Measurable amounts go through in the second day; after that time the amounts are too small to measure. While it is unsafe to assume that cow's milk protein behaves exactly like serum protein in the infant's intestine, it seems probable that the intestinal wall is more permeable to unchanged protein in the first two days of life than it is later on. The foods most commonly shown as causes of eczema are cow's milk and wheat: these two foods are commonly the earliest foods fed to infants. The author feels that eczema problems are created by making infant feeding too complicated.

COMMENT

We heartily agree with most of the suggestions made by the author for the treatment of infantile eczema. Certainly the best way to treat it is to prevent it. I think the author is imminently correct in stating that we should not begin to feed infants as early as has been suggested in the past. At three months is early enough to begin to feed any baby, and all of us should insist on breast feeding as much as possible; in fact, I think we have been too prone to relax our insistence on breast feedings. In beginning the feedings at 2½ to 3 months of age it is our practice to start the individual cereals first and give sufficient time to see if there is any allergic reaction to them. We find that the beginning of the mixed cereals first does not allow a correct interpretation as to which of the foods are responsible for the eczema or other allergic reactions. I am sure that in most instances when we are inclined to be so quick to change a child's feeding it is because we have not made a careful study of just which one of the foods is responsible for the trouble. Usually ordinary cow's milk or evaporated milk can be made to agree with a child if the formula is properly constructed. However, where there is continued failure and a persistence of eczema, a change to goat's milk will most frequently correct it without having to resort to hypo-allergic milks.

Deaths

W. W. CRAWFORD

Services were held November 3 in Hattiesburg for Dr. W. W. Crawford, 83, one of Mississippi's most prominent physicians.

Dr. Crawford died at South Mississippi Infirmary which he founded in 1900 as Mississippi's second hospital. His death followed a long illness.

Survivors are his widow, one son, Hamilton, president of Crawford Industries, Baton Rouge, one daughter, Mrs. C. M. Slocumb, Jackson; three sisters, Mrs. J. C. Rimes and Mrs. J. H. Rimes, both of Tylertown, and Mrs. Nat Owens, Gulfport; a brother, Dr. B. Lampton Crawford, Tylertown, and four grandchildren.

Dr. Crawford received his literary degree from the Valparaiso University, Indiana, and his medical degree in 1898 from Jefferson Medical college in Philadelphia, Pa. In 1905 he was awarded a degree in pharmacy from Tulane University.

After practicing for one year in Tylertown, Dr. Crawford came to Hattiesburg in 1899 and began a distinguished career in the medical field and as a pioneer in the development of Hattiesburg and southeast Mississippi.

He operated the South Mississippi Infirmary for 46 years before retiring in 1946.

Dr. Crawford was one of the organizers of the Hattiesburg Chamber of Commerce and served as its president in 1906 and 1907. He was influential in having Camp Shelby located near here during World War I, then served at the camp as commanding officer of the surgical staff. Later he went to France as chief surgeon of a base hospital. He was a lieutenant colonel in the Medical Corps.

Dr. Crawford joined the American College of Surgeons in 1914, a year after it was formed. He organized the Southern Medical Association and was among its presidents.

He served as president of the Mississippi Medical Assn., president of the State Board of Health and was a member of the American Medical Assn., and Southern Surgical Assn.

He was a leader in Main Street Baptist Church, a director of the First National Bank of Hattiesburg, and an honorary member of the Hattiesburg Rotary Club and Hattiesburg Country Club.

DR. G. S. BRYAN

Dr. Giles Sanford Bryan, who practiced medicine in Amory more than 56 years, died at noon November at his home after a heart attack. He was 91.

Dr. Bryan was born in Aberdeen in 1863. He attended the University of Mississippi and was graduated from the Memphis Medical College in 1888. He first practiced medicine in Jasper, Ala., and moved to Amory in August, 1889, where he had been actively engaged in the practice of medicine. An illness in January, 1945, left him an invalid.

His wife, the former Miss Mary Elizabeth Little of Jasper, Ala., died in 1947. Dr. and Mrs. Bryan were married more than 57 years.

A Baptist and active in the church work until his illness, he taught an adult Bible class for years.

He was a past president of the Mississippi State Medical Society, a past president of the Northeast Mississippi Medical Society and a past president of the Monroe County Medical Society.

Dr. Bryan gave untiringly of his time and energy for the cause of medicine in Mississippi. He was a member of the American Medical Association and the Southern Medical Association.

He was instrumental in establishing a Department of Health in the state and was a pioneer in public health in Mississippi. Called "the sage of Mississippi medicine," he was a member of the 50-Year-Club of the Mississippi State Medical Association.

He leaves two daughters; Mrs. R. C. Griffin of Amory and Mrs. C. B. Allen, Jr., of Rosedale.

DR. C. R. SENTER

Dr. C. R. Senter, mayor of Byhalia, physician and civic and church leader, died November 23 of lymphogenous leukemia at the Baptist Hospital at Memphis. He was 61.

He was born at Fulton, Miss., and served as a physician in World War I. In 1917 he married the former Miss Mabel Prewitt of Memphis and they moved to Byhalia in 1919, where he began his medical practice.

He has served as mayor of Byhalia since 1947, and had obtained a mop factory, Gem, Inc., for the town and recently obtained a contract for installation of a natural gas system.

He had served as chairman of the Byhalia school board up to March of this year and as a director of the Citizens Bank of Byhalia. He was a past master of the Byhalia Masonic Lodge, a deacon in the

Baptist Church and chairman of the present annex building committee and a member of the Lions Club. He was an alderman before his term as mayor.

Dr. Senter was graduated from the University of Tennessee College of Medicine. During World War I he served as an officer in the Medical Aviation Corps.

He was a member of the North Mississippi Medical Society, the Mississippi State Medical Association and the American Medical Association. He was president of the medical staff of the North Mississippi Hospital at Holly Springs and represented Marshall County on the board of trustees of the hospital.

He leaves his wife, and two sons, Curtis R. Senter of Memphis and Roderick J. Senter of Cincinnati, Ohio.

DR. W. S. BERRY

Funeral services for Dr. Winfield Scott Berry, 69, beloved physician of Prentiss and Jeff Davis County, were held October 11.

Dr. Berry died at his home from a heart attack.

A native of Prentiss, he was the son of the late John L. and Sorinthia Berry. He was educated in the local schools, at Millsaps College, and at Tulane University. He was recently honored by the New Orleans Chapter of the College of Surgeons with a Certificate of Attendance for the last ten years.

Dr. Berry began his practice of medicine in Prentiss in 1914, and during the intervening years had contributed a great deal to this community. He was at one time associated with Dr. Blount in Laurel, but most of his life he practiced in Prentiss. He was an active member of the Methodist church.

Survivors include two sons, John S. Berry, Long Beach, and W. S. Berry, Jr., Prentiss; four grandchildren. Winfield Ill., Julie Ann, David, and John Scott Berry, Jr., two sisters, Mrs. O. S. Rouse and Mrs. Clyde Smith, Prentiss.

DR. R. R. HALFACRE

Services were held November 6 for Dr. R. R. Halfacre, former member of the Medical Board at Whitfield and at one time superintendent of the State Training School at Ellisville.

Dr. Halfacre died in Jackson, following an illness of four years. He was 72.

Born in Newberry, S. C., Dr. Halfacre spent his boyhood in Kosciusko, Miss. He earned his medical degree at Tulane University, moving to Sumrall, Miss., where for several years he served as doctor for a lumber company. He also practiced in Seminary for some time.

He was a member of the Medical Board at Whitfield from 1927 until 1932, then served in the Ellisville post almost five years, coming to Hattiesburg in 1936 and practicing here until he became ill. He was a member of the First Baptist Church.

He leaves a daughter, Nell Halfacre of Hattiesburg and a half-sister, Mrs. Cleve Odum of Ellisville.

DR. J. J. McCAULEY

Dr. Joshua Jefferson McCauley, 74, retired physician of Leake County, died at the home of his sister, Mrs. Y. A. Pearson in Starkville following a long illness.

Dr. McCauley was born and reared in Leake County where he practiced until ill health forced his retirement. He was a member of the Masonic Lodge and the Methodist church.

Funeral services were held at Daw's funeral home in Philadelphia, with Rev. W. C. McClelland, pastor of the First Methodist church, officiating. He is survived by one brother, J. F. McCauley, of Philadelphia; four sisters, Mrs. Y. A. Pearson and Mrs. R. B. Niven of Starkville; Mrs. J. M. Wilkerson of Philadelphia; Mrs. P. C. Mayo of Benton, Miss., and a host of nieces and nephews.

DR. R. B. BOYKIN

Services for Dr. Robert B. Boykin, Mississippi country doctor for more than half a century who died November 22 at the Baptist hospital in Jackson after a long illness, were conducted in Mize.

Dr. Boykin, who was 77, was born and had resided most of his life in Smith County. He practiced at Daniel in Rankin County from 1903 to 1924, moving in that year to Mize where he has continued to practice. He was a steward in the Mize Methodist Church and was a Mason.

He leaves three sisters, Miss Kate Boykin, Mize, Mrs. Rosa Moss, Falfaris, Texas, Mrs. Bessie Purvis, Polkville; one brother, Dr. F. R. Boykin, Fiserville, Texas.

Two thousand years ago life expectancy was 20 years, a hundred years ago, it was forty years, now it is 70. Scientific medicine has traveled half of its distance from the time of Hippocrates, 358 B.C., to the present, during the last fifty years.

Two definitions of a specialist: 1) A man who does the easy thing the hard way and charges accordingly; 2) A man who does one thing so well that the people will not give him time to do anything else.

Woman's Auxiliary

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PRESIDENT'S LOG

Our state president, Mrs. M. M. Snelling, has been a busy traveler this fall. She's endeavoring to visit all of the auxiliaries over the state before spring.

"I began," relates she, "with a most gratifying visit with the Tri-Counties Auxiliary in McComb—and what a delicious dinner! Then we got everything started with the board meeting in Jackson, soon after which I went to Purvis where the Hattiesburg Unit of the South Mississippi Auxiliary met in the home of Mrs. J. N. Mason. Mrs. Duck shared the duties of hostess, and we had a delightful meeting. Mrs. Tatum, the president, has everybody interested in all phases of the work. Mrs. Elmer Gay made the trip with me and talked on nurse recruitment.

"Early in October I went to Jackson for the Central Medical Auxiliary. Already an active and enthusiastic group, they will make real progress this year under the leadership of their gracious and competent president, Mrs. Safley. They are striving for 100 per cent subscriptions to *Today's Health*. The meeting was held in the lovely Mississippi Federation Building.

"Then with the Cummings McCalls I went to Holly Springs for the North Mississippi meeting. Guested with the Philpots. The group is small but the members are interested and wonderfully cooperative.

"The middle of October found me in Indianola for the semi-annual meeting with the Delta Medical Auxiliary. This is a group composed of several units which meet separately once a month, but nothing surpasses the Delta hospitality when they all come together! They contributed $40.00 to the AMEF.

"Just before the Presidents and Presidents-Elect Conference in Chicago I went to Clarksdale for a fine meeting. Six counties join to make this one of the most active auxiliaries. I was sorry to miss Vicksburg's meeting on October 19. I had another grandbaby due! He is here now and makes the fifth. I hope to go to Vicksburg in January or March.

"In December I will visit Northeast Mississippi in Tupelo and East Mississippi in Meridian. Letters from the various auxiliaries describe effective work and enthusiasm. Just recently Leake County Unit to Central Medical subscribed one hundred per cent to *Today's Health;* Clarksdale has a splendid nurse recruitment program and is getting a fine response from the essay contest in high schools. Their dues were raised to include *Today's Health.*"

"To all our friends and Auxiliary members over the state, we extend best wishes for a Happy Holiday Season and a wonderful New Year!"

Isabelle Snelling

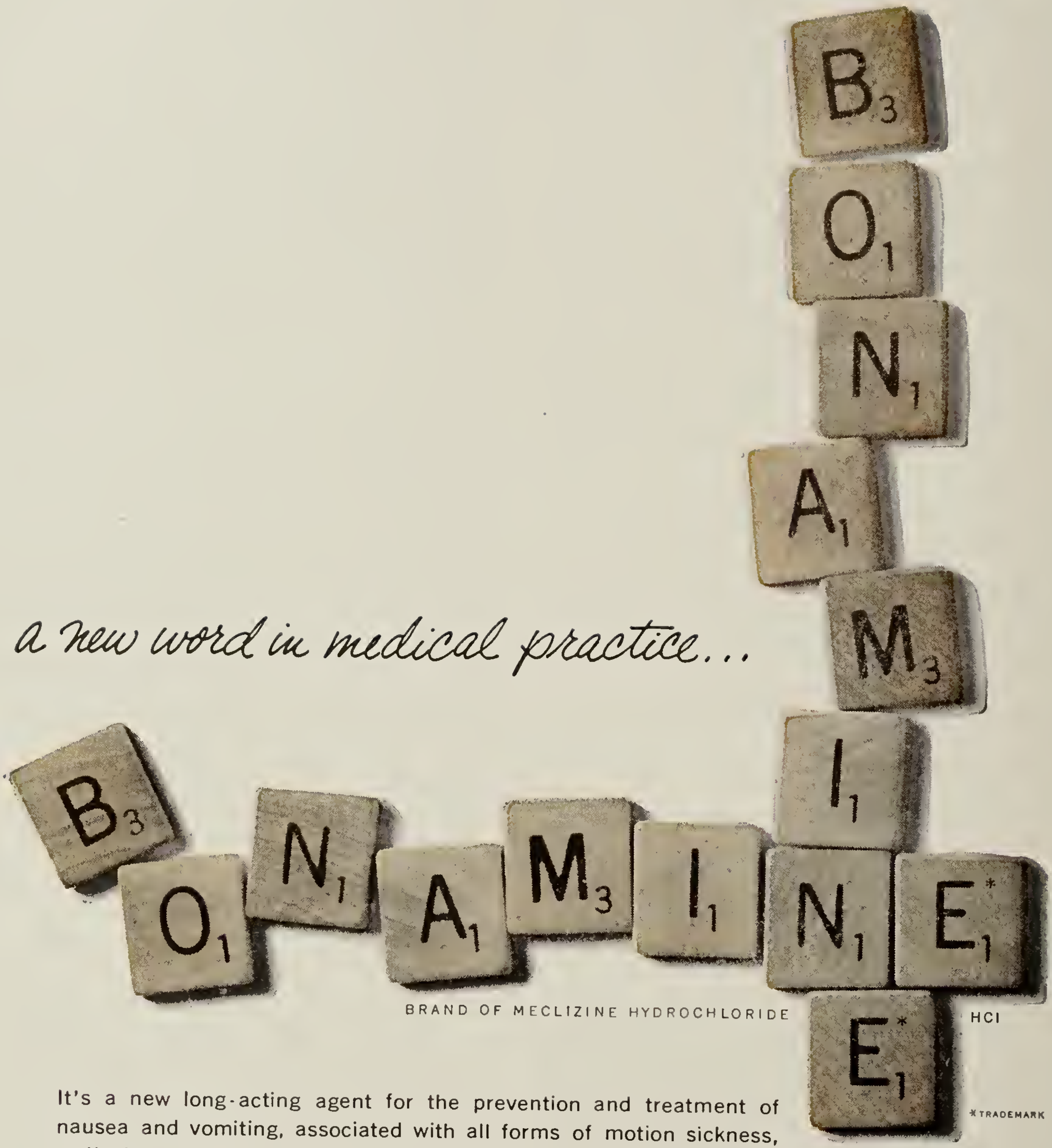
MRS. BAILEY ON NATIONAL COMMITTEE

Of interest to auxiliary members over the state is Mrs. S. Lamar Bailey's post on the 1955 Nominating Committee of the Woman's Auxiliary to the A.M.A. Mrs. Leo J. Schaefer of Kansas, is chairman.

Mrs. Bailey served very successfully the past year as president of the state Auxiliary.

CREDO FOR AN AUXILIARY:

1. I am your opportunity as doctor's wives to be identified with the medical profession;
2. I support and interpret the ideas and ideals of the medical association;
3. I am an auxiliary and am not independent;
4. It's not my size; it's my influence that will make me live;
5. I am as wide as the vision of my membership;
6. I am your auxiliary; I am what you make me.



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Tort Liability of The Physician*

T. HARVEY HEDGEPETH†
Jackson, Mississippi

> "A doctor who knows nothing of law, and a lawyer who knows nothing of medicine, are deficient in essential requisites of their respective professions."
>
> —David Paul Brown

It may be that the doctor's first patient was a lawyer—and the lawyer's first client a doctor—but it was many years before the practice of the two professions became so related that they formed a new body of law, known variously as Forensic Medicine, Legal Medicine, or Medical Jurisprudence.

The first recorded instance of a doctor's relationship to a court was in A. D. 1532 when Emperor Charles V of Germany ordained in Caroline Code that the courts should receive the opinion of medical men in cases of death by violent or unusual means. The counterpart of this relationship in our own system, the English Commonlaw, came only a few years later, in A. D. 1606, when Henry IV authorized the first physician to appoint two surgeons in each city and town who should have the duty to examine the bodies of all persons slain or wounded and render opinions to the court. In A. D. 1692 physicians as well as surgeons were authorized to aid the courts by giving testimony about medical matters in all cases involving such matters. The entire system of Medical Jurisprudence finds its origin in these early recognitions by the law of the peculiar skill and knowledge of physicians.

The portion of Medical Jurisprudence which we are to consider today, however, deals with malpractice, or the tort liability of the physician. Either from a profound trust of practitioners of medicine or from a profound ignorance of the art, mystery and science of its practice, the governments of England and the United States have not attempted to prescribe the standards of medical practice. It seems likely that this policy proceeds from an attitude of trust. Legislative bodies have always been made up predominantly of lawyers and no group knows better than lawyers how difficult it is to prescribe standards for professions involving "art and science." The legal profession has enjoyed the same exemption from legislative standard making.

We must therefore turn to the reported cases from our courts involving acts of omission or commission on the part of a physician that have made him liable to a patient before the courts.

One of the oldest cases was Slater vs. Baker, 2 Wills. K.B. 359, tried in A.D. during the reign of George III. Principles established in that very early case are alive today. The physician had treated a patient having both bones in his leg broken. During the healing process it was discovered that the bones were knitting all right, but were crooked. The doctor, without the patient's permission, decided to treat this condition by "extension" and for this purpose used a new and untried instrument described in the decision as "an heavy steel thing that had teeth and would stretch or lengthen the leg." As a result the knitting was interrupted and there was a second break. The bones failed to knit the second time and many months of suffering ensued. Although the physician was the first surgeon in Saint Bartholomew's Hospital and a man of great reputation, the court found that he proceeded "contrary to the known rule and usage of surgeons" and he was held liable. Of course, a physician doesn't hesitate to make a second break these days where necessary, but the point of the case was that the physician in that case employed new and untried instruments without the patient's permission and they were unsuccessful.

The very first American case as far as I have fourd was Cross vs. Guthery, 2 Root 90, 1 Am. Dec. 61, tried in 1794. In this Connecticut case, the plaintiff charged that the physician operated on his wife for a tumor of the breast and had "performed the same in so unskillful and cruel manner that plaintiff's wife survived but three hours". Upon the evidence it was found that the physician's lack of skill and care caused the patient's death and the plaintiff recovered.

These cases are chiefly of historical interest only, however, since all modern practitioners are well aware that an unwarranted and unorthodox experiment or gross lack of skill, or cruelty on the part of a physician would not be tolerated in this day by either his profession or the courts. The simplicity of the cases mentioned may be due primarily to ignorance of the subject at that time.

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*Presented before the annual meeting of the American Academy of General Practice, Mississippi Chapter, Jackson, September, 1954.

†Practicing attorney at law.

While several texts (of a kind) had been published on the continent during the eighteenth century, it was not until 1790 that the first booklet on medical jurisprudence was published in England and no noteworthy American text appeared until 1823 when Dr. Theodric Beck published his "Elements of Medical Jurisprudence". Perhaps the earliest authoritative text was that published by Dr. John J. Elwell, both a physician and a lawyer, in 1859. Dr. Elwell complained that the medical profession was at that time plagued with such an alarming frequency of civil suits—involving even the oldest and most reputable of the physicians—that something had to be done about it, but I took his complaint with a grain of salt, remembering that when Seargent S. Prentiss entered the practice of law in Mississippi, he wrote his brother in Maine that the law was a noble profession, but greatly overcrowded in this state. I don't think either of them lived long enough really to find out what conditions could come to eventually!

Anyway, Dr. Elwell's avowed purpose in writing the book was a good one. It was this: "The only effectual and permanent mode, it is believed, by which the evil can be reached, remedied and guarded against, is by elevating the standard of medical legal knowledge in the professions of law and medicine."

Let it be said, however, that neither in that day nor this has the medical profession of Mississippi suffered the plague of damage suits as has been true is other places. It was not until the year 1916—ninety-nine years after Mississippi became a state—that a doctor was required to account to the Supreme Court of Mississippi for any irregularity in the practice of his profession, in this state. Any way you look at it, that is a tribute to your predecessors in the medical profession of this state. One might speculate as to whether this was due to the high standards of the medical profession, the forbearance of the legal profession, or whether it just took this long for the laity to realize the error of the notion that doctors can do no wrong! Or, might it be an illustration of the old saw that a lawyer must live with his mistakes, while a doctor can bury his?

But despite this long silence of the courts, and despite the most excellent record of the medical profession through the years, let us see if we can determine just what tort liability of a physician is in the state of Mississippi today. Again let me say to the credit of your profession we have but few cases to guide us.

From the earliest Mississippi case, Saucier vs. Ross, 73 So. 49 (1916), we learn that the leaving of a foreign object unexplained in a patient's body by a physician is negligence. Of course, that much is obvious. From Prewett vs. Philpot, 107 So. 880 (1926), we find "a surgeon must exercise reasonable care when operating on a patient to prevent foreign matter that will be harmful to the patient from getting into and remaining in the wound made in the course of the operation." That is another statement of the same principle. From Shaw vs Klein, 83 So. 620 (1920), we learn by inference, but dependable inference we think, that a physician is responsible for "want of skill and care"; but, this is very important to the physicians and surgeons to disprove the charge against him. We shall come back to this point a little later. From Berryhill vs. Nichols, 158 So. 470 (1935) wherein the physician allegedly failed through negligence to discover that gun wadding had entered the wound he was treating and the patient died from a pulmonary embolism traceable solely to the original trauma, we find the comforting doctrine that a physician is responsible in the event of death only if his negligence and not something else was the proximate or real cause of the death.

Another important doctrine that has been applied to medical jurisprudence in Mississippi is that of *res ipsa loquitur,* meaning, "the thing speaks for itself." (We don't use as much Latin in the law as the doctors do in medicine, but we try to use enough that folks won't know what we're talking about, at least some of the time!) From your viewpoint this doctrine simply means that where a person is injured by an activity the exclusive control of another which ordinarily would not cause injury if the one having such control used proper care, a presumption arises that the injury was caused by the latter's want of care. The presumption simply makes out a *prima facia* case so that the physician is called upon to meet it with an explanation. In the recent case, Sanders vs. Smith, 27 So. 2d, 889 (1946), explains that this doctrine is usually limited to those cases where in the course of an operation an extraordinary incident or unusual event occurs which, if unexplained, would itself "reasonably speak to the average man as a negligent cause . . . of the untoward consequence"; but, the discreet physician will try to see that no "untoward consequence" occurs while his patient is under anesthetic or in a state of shock or even when the patient is in his right mind but has committed the treatment entirely to the physician.

Significant dicta found in the case just mentioned gives us a fairly satisfactory picture of just what is expected of the physician in this state. It declares that a physician is not a warrantor of cures and that the law has never held a physician liable for every untoward result which may occur in medical practice. If it were so, the courts reason, "few would be courageous enough to practice the healing art." It explains that the law requires only that a physician shall have that degree of learning and skill ordinarily possessed by other physicians of good standing practicing in the same locality and that he shall use ordinary care in applying that learning and skill to the treatment of his patient. Note, however, both learning and skill are involved. Then this significant thing is brought out: Ordinarily the question as to whether a physician has met this standard is to be determined upon the basis of the testimony of *experts* unless, of course, the matter in issue is within the common knowledge of laymen. Therefore, you may take courage that if you are charged with lack of reasonable "learning" or the failure to employ reasonable "skill" in either case the determination is to be made primarily upon the basis of the testimony of experts, that is to say doctors. Ordinarily then, you should be able to defend yourself if you have a valid defense.

That about covers the situation as we have it in Mississippi. There are many, many questions which have never been cited in this state because they have not reached the courts, or at least have not reached the supreme court.

Turning to the country at large, we find in the encyclopedia Corpus Juris Secundum (you well remember we do use enough Latin to keep folks confused) a succinct statement distilled from the cases throughout the country, as follows:

> The general rule. . . is that a physician or surgeon is required, and is only required, to possess and exercise the degree of skill and learning ordinarily possessed and exercised, under similar circumstances, by the members of his profession in good standing, and to use ordinary and reasonable care and diligence, and his best judgment, in the application of his skill to the case."

You will see that this is in keeping with the principles followed in such cases as have been decided in Mississippi.

Perhaps it should be stated also that the courts have held rather generally that consideration should be given to the state of medical or surgical science at the time of the event to determine the required degree of skill and knowledge. This, of course, should be the case. A doctor should not be held responsible for an error of judgment made five years ago merely because, in the light of new scientific discoveries, the treatment given would be erroneous today.

I want to mention again that all of the foregoing has "evolved" as a part of the body of our common law without a single statute on the subject. These principles have, of necessity, been developed by lawyers and judges in the administration of the courts of justice.

It will be interesting, however, to note that we have certain statutory health and quarantine regulations prescribing duties of physicians or certain acts to be performed by physicians in this state, and it is very likely that a failure to perform these duties would result in tort liability. We have no decisions on these statutes in Mississippi, but there are decisions on similar statutes in other states which are persuasive. For instance, under a statute similar to Section 7071 of the Mississippi Code, prescribing a duty for physicians to use some prophylactic against Washington state courts held a physician liable in tort who failed to do so.[1] Under a statute similar to Section 7068 of the Mississippi Code prescribing a duty for physicians to report the inflammation of the eyes of an infant to the proper health authorities, the Ohio state courts held a physician liable who failed in his duty.[2] If a Mississippi physician should fail to comply with statutes of this sort and injury resulted, we believe he would be held liable even without the support of expert testimony.

Other interesting cases from sister states on points which have not been decided in Mississippi—which cases would be at least persuasive as precedence should similar cases arise in this state—may be noted as follows:

1. In Virginia, it has recently been held that a doctor prescribed one of the new so-called "wonder drugs" without having first ascertained the probable effects or the precautions which should be observed, was liable to his patient for suffering which resulted from an unanticipated reaction.[3]
2. In Ohio it has been held that while a physician using reasonable skill and care in making a diagnosis, is liable for injuries resulting from a mistaken diagnosis, he is liable if he fails to use such reasonable

skill and care even though he acted honestly in making the diagnosis.[4]

3. A federal case in Illinois was held that under certain circumstances a physician is excused from making a complete examination. In that case the physician was treating a patient for a fractured skull, but did not discover that the patient was also suffering from a broken hip, since to make this discovery would have required moving the patient and endangering his life. The physician was excused for the failure to detect the second condition.[5]
4. In Arizona a physician has been held liable in damages for failure to disclose to his patient an injury that the patient suffered through the doctor's negligence.[6]
5. In Georgia a doctor has been held liable in damages for failure to inform his patient that it was necessary to leave a foreign object in his body.[7]
6. In Arkansas a doctor has been held liable in damages for failure to disclose to the family and others likely to be exposed that the patient was suffering from a contagious disease.[8]
7. In a number of states, in fact it is the general rule, a doctor is held responsible for the negligent acts or omissions of other persons working with him and under his direction in the treatment and care of his patient. This includes his partner, a collaborating physician, another physician recommended by him or substituted by him for himself, a nurse, an intern and other attendants or employees who are acting directly under the supervision of the doctor.[9] Of course, there are infinite variations of this rule, including such things as 1) he is not held liable for the torts of a collaborating physician committed independently and in his absence;[10] 2) if the physicians are employed separately, they may divide the treatment according to their own judgment and each will be responsible only for that portion that is assigned to him except where he should have observed and objected to acts of the collaborator;[11] and 3) he is responsible for the acts of recommended or substituted physicians only if he failed to use due care in the selection and recommendation of such physicians.[12]
8. I hasten to state for I know you are wondering about it, that ordinarily a physician is not liable for the negligent acts or omissions of another's (for example, the hospital's) employees during the course of an operation or other treatment; however, it should be carefully noted that when upon all the evidence it is determined by the court that such person came so completely under the direction and supervision of the physician as to be acting for the physician when the tort is committed, there will be liability. A case in point is a nurse who is an employee of a hospital, but at the moment acting under the direction of the physician.[13]

So, who, therefore, can tell the physician where he stands legally? By this time you must have detected that the law is not an exact science. But neither is medicine. The professions stand apart from business and commerce.

If we live under a bit of uncertainty, we nevertheless live amidst possibilities of great attainment and great good. Our lives are filled with satisfactions that others can never know. When the doctor or the lawyer has completed a professional job and, as we say "buttoned it up" in such manner that in his own heart and soul he feels he can properly say "well done," his feeling of well-being can be shared only by those who have had like experiences. The doctor deals with saving lives and making life more comfortable and happy for those he serves and when he stands alone under the stars at night or sits quietly in his study after others are asleep, and realizes that he has saved a life or the use of a limb, his whole being must tingle with excitement and satisfaction. The lawyer struggles eternally with man's efforts to carry on an orderly society—and with the basic human rights of the individual—and finds many points at which he may pause to feel like satisfactions. It seems to be for these reasons that—many in both professions look strongly toward getting the job done without giving much consideration to the economics involved.

We shan't pause to take too much note of the disappointments and heartaches. They are there and always will be to a greater or less degree because we are human, but they can't deter the noble purposes of the great professions. Nor can they slacken the efforts of the noble men and women of these professions to advance from victory to victory. We can only strive to hold them to the lowest possible minimum and, under God, reach forth to the things that are ahead to bless humanity, through medicine and law.

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2. Dietsch vs. Mayberry, 47 NE 2d. 404, 70 Ohio. App. 527.
3. Reed vs. Church, 8 SE 2d, 285, 175 Virginia, 284.
4. Paulson vs. Stocker, 4 NE 2d, 609, 53 Ohio App. 229.
5. Weintraub vs. Rosen, C.C.A. Ill., 93 Feb. 2d, 544.
6. Acton vs. Morrison, 155 Pac. 2d, 782, 62 Ariz. 139.
7. Bryson vs. Aven, 124 SE 553, 32 Ga. App. 721.
8. Davis vs. Rodman, 227 SW 612, 147 Ark. 385.
9. Hyrne vs. Erwin, 23 S.C. 266, 55 Am. Repts. 15.
10. Rodgers vs. Canfield, 262 NW 409, 272 Mich. 562.
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Atheromatosis: A Statement of Fact and Definition of the Problem

THADDEUS D. LABECKI, M.D., M.S. IN MED.
Jackson, Mississippi

We have grown so accustomed to the revolutionary nature of modern science that any theory which affronts common sense is apt to be regarded today as half-proved by that very fact." This statement is the introduction to the historical lecture entitled "Geometry and Intuition" delivered several years ago by Hans Hahn, the brilliant Austrian mathematician. It may well serve as a motto for the discussion of atherogenesis.

Because of a number of factors, the impression is often now conveyed and its veracity strongly implied to the profession at large and to the laity that a pattern of pathogenesis of atheromatosis in general and of the coronary arterial tree in particular is either entirely unknown or that the facts known do not fit into any logical pattern.

Let us set down first briefly some of the fundamental facts which are either undisputed or where the differences of opinion are least in evidence:

1. Atheromatosis is the most prevalent disease entity in human beings.

2. It affects males with greater frequency up to the age of early senility when the statistical frequency and the degree of involvement seem to begin to equalize in both sexes; males castrated early have incidence of atheromatosis equal to that of females, and cancer of the prostate victims receiving estrogens and/or castrated manifest on the autopsy table much less atheromatosis than a comparable male population without the benefit of that regime.

3. Whatever the chain of events may be, the basic pathology, best and particularly evidenced in the coronary system, is thickening of the intima due to the appearance of lipid material with secondary fibrosis, deposition of calcium, formation of the atheromatous plaque, minute hemorrhages, thrombosis; in fact, the microscopic wealth of pathology can only compete with the number of prophets attempting to explain it.

4. Atheromatosis is frequently accompanied by certain metabolic disturbances like diabetes, obesity, hypercholesterolemia; whether atheromatosis is the outcome of such a disturbance or whether both are separate phenomena as if two indices of a common cause, one does not know.

5. The increased intravascular pressure favors either generalized or segmental atheromatosis evidenced, for example, by marked changes above the constriction in coarctation of the aorta, marked changes in the pulmonary arterial tree in conditions effecting increased pulmonary vascular pressure, for example mitral stenosis.

Let us merge now into a recollection of certain basic facts and observations which by their impact merit the greatest, but so far grossly insufficient, attention.

1. The lipid substances circulating in the blood are the only group of naturally occurring substances which do not mix with water; ditto they are in suspension—that is, in macromolecular form combined with certain and varied protein fractions

and forming the broad spectrum of macromolecules from the most minute ones (submicroscopic) to the large ones easily detected with a dark field microscope (commonly known as chylomicrons).

2. Hueper[1] in 1939 and in subsequent years found that repeated injections of aqueous suspensions of macromolecular substances like polyvinyl alcohol, methyl cellulose, pectin and gum acacia resulted in the gradual accumulation of these substances in the arterial intima of dogs, rabbits and rats; the morphological appearance of the lesions and their distribution were typically those of atherosclerosis except that the deposits were of the injected foreign substance instead of lipids. *The particle size of those substances is within the range of the microscopically visible lipiprotein particles—chylomicrons.*

3. Gillman and co-workers[2], studying the pellagrous South African natives, reported in 1947 that certain pathological iron-pigment macromolecules suspended in the blood plasma became deposited in the arterial intima and elsewhere.

4. The work of Evans and associates reported during the last two years demonstrated that under rigidly controlled conditions strips of fresh aortas previously free or almost free of theromatous changes when perfused with plasma from atherosclerotic subjects showed early lipid infiltration of an impressively greater degree than when perfused with plasma from individuals not affected by clinically demonstrable atheromatosis.

5. Enos[3] in an epoch making study on American combatants in Korea killed in action demonstrated marked atheromatous changes in the coronaries of those young men (mean age, 21) and considerable variation in the anatomy of the coronary tree, which differences appear to correlate with segments affected and with the degree of infiltration. The coronaries of Americans contain in the atheromatous plaques more lipid material than the coronaries of orientals of similar age and subjected to similar circumstances.

6. The monumental study of Katz, Pick and co-workers[4] demonstrated recently that in cockerels estrogens protect the birds from experimentally induced atheromatosis (or more precisely "cholesterolosis" since that substance is used for that purpose), and indeed there was evidence of the reversal of the process when the estrogens were administered.

7. Our daily experience and a study of sudden non-combatant death in the U. S. armed forces during the second world conflict give ample evidence that atheromatosis affects men with greater frequency now in *the prime of their life* and that the disease shows a greater than ever over-all prevalence.

The key questions to be answered are:

1. Why are men affected more commonly, at least in the first five to six decades of their life, or why females in that period seem to be afforded a considerable degree of protection?

2. Why some individuals under superficially similar enviromental, racial and dietary conditions are affected to a much greater degree than others?

3. Do all or only some—that is, of certain size and chemical composition—of the lipoprotein molecules enter or become entrapped in the intima?

4. Is there a regime, method of treatment, or combination of circumstances which can prevent, delay or reverse the disease process, or is this, the most prevalent condition, the price of evolution, the chapter in our dietary, postural and emotional adaptation in the passing parade from a primitive system to a highly complex and intelligent being?

The answer to the first question will probably be found in human experimentation by establishing whether the female sex steroids can afford protection or delay the disease process in man (even at the price of emasculinization) either by acting on the permeability of the intima or on the metabolism of fat as manifested in and studied by the physical and chemical makeup of plasma lipoproteins.

The solution to the second question is not aided by dogmatic, arbitrary statements like the one uttered a few months ago by a member of a panel at the annual meeting of the American Heart Association: "chylomicrons are too large to enter the intima." This is either forgetfulness or ignorance of basic experiments of Hueper who reported painstakingly and lengthily between 1937 and 1945 in ARCHIVES OF PATHOLOGY on the subject mentioned above. It is aided, however, by men of intuition and imagination like John Moreton[5] [6], who with the boldness and clarity of a true scientist pointed out first the fact that the physical state, the sheer size of the large lipid macromolecules, and the frequency with which they always appear in the post-prandial state may well be the important link in the chain of events leading to the atheromatous plaque.

The number of factors apparently involved—sex, intravascular pressure, faulty fat metabolism—make it most difficult to imagine a cause and a diagnostic anti-mortem test can be discovered.

The heredity, statistically implicated, may act through one or more links; it may be the hereditary characteristic of the arterial wall; it may be the inherited poor ability to metabolize, ditto disperse, the lipoprotein molecules in a more advantageous manner; it may govern the emotional makeup of the individual. What do we really know of the impulses generated in the central nervous system and relayed to the peripheral vascular system, especially the coronary tree? What do we know about the sexual makeup of an individual, the sexual cycle of man which undoubtedly exists perhaps as an evolutionary remnant evidenced by periods of unexplained greater sexual activity to be followed by a period of sexual tranquility, if that is the word for it? Can it be that these cycles combine to our disadvantage with our mode of life changed so radically by the discoveries of the last century, the mode of life promoted by social pattern, professional demands, personal frustrations, aided by the evergrowing insecurity of the human race which feeling prevails in all, from the sophisticates of university hall, cafe society and business clan to the native in the Pacific, the fisherman in Alaska and the wanderer in Tibet? So far they have allegedly suffered less from this modern disease which in some circles in our milieu becomes an index of mercenary success.

It may very well be that when these various factors become *concurrent, coexisting too frequently* and their relative impact *quantitatively too great*, the disease process reaches the point when it becomes clinically demonstrable and then at last is diagnosed, too often as the last but one chapter in the patient's history.

The time factor should be considered here as relative, not in the sense of Einsteinian relativity but describing it bluntly: ten years in one man's life may equal twenty or thirty in another man. The stresses, the emotions—either spontaneous, due to one's so-called personality, or due predominantly to external factors and circumstances to which although we apparently react with individual intensity we all react nevertheless to *some* degree (recall the coronaries of men killed in combat in Korea); the diet (recall the lesser morbidity and mortality from atherosclerosis in Scandinavian countries and Holland and Denmark under German occupation with its strict rationing in larger towns and cities); the apparent influence of sex (recall your last several coronaries, virile men perhaps with drive and urge to succeed, to work hard, love hard, laugh loud and, perhaps inwardly at least, hate much); all these factors need time to act: if one or more are stronger than a certain safe level the time need not be long; if on the other hand they are milder, sufficient opportunity will be given for collaterals to develop and only in the twilight of life's span the end shall come.

To devise a numerical formula, call it "atherogenic index" or whatnot, to claim that a single test can be or has been devised is to over-simplify the problem.

And the final understanding of atherogenesis is then clouded as much as it is by closing one's ears and eyes to the already *known* facts which when gathered together begin to make sense, and in the language of science and philosophy the word for common sense is intuition—it relates to that which is directly sensed or apprehended. And thus a pattern emerges, a pattern of a disease which together with man's urge and ability to pray forms a sharply defined evolutionary milestone: only man prays and only man dies of coronary artery disease.

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A New Treatment for Psoriasis

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Perhaps even our concept of the etiology of psoriasis has been changed in the past two years with the advent of vitamin B_{12} or cyanocobalamin and the dramatic response in this disease in all its phases to this type of therapy. We must of necessity consider a vitamin B_{12} deficiency as a causative factor. Our use of vitamin B_{12} in the treatment of psoriasis was not accidental. After using vitamin B_{12} successfully in a number of other skin diseases, as lupus erythematosus, with some similiarity in pathological structure, it was a natural impulse to attempt the treatment of psoriasis in a like manner. The results exceeded our expectations. We have treated a few cases of psoriasis with vitamin B_{12} alone. The results were encouraging, however, somewhat slow, but much more rapid than any previous method.

Since time is a factor with which we all race, an even more rapid method was sought. We found that by the addition of arsenic and bismuth administered parenterally the lesions disappeared in considerably less than half the time previously required. The symptoms of itching and burning were allayed very rapidly and in only one case were we forced to use any topical applications. From these facts we have, in our use of vitamin B_{12}, found that arsenic acts as a catalytic agent and enhances the value of the drug in a most satisfactory manner.

The lesions, as in lupus erythematosus, which we have treated with equal success, gradually desquamate and fade. Itching and discomfort are allayed, in some cases after two or three days. Scalp lesions, which have always given us much concern, are more amenable to treatment than lesions on the body and extremities in most cases. Due to the relative rapidity of the involution of the lesions, pigmentation remains a proportionate longer time but this in time also disappears. To the date of this writing, we have had no failures.

Patients treated by other methods have come under our care and when a régime of vitamin B_{12}, arsenic and bismuth was administered, the response was most gratifying. Perhaps the most stubborn lesions were those of the palms and soles. None of our patients were hospitalized; therefore we do not know if still better and more rapid results can be accomplished with rest.

The results described in this report were obtained by a dosage of 1000 micrograms of vitamin B_{12}, given subcutaneously, daily for 10 days, then 1000 micrograms three times weekly for two weeks then 1000 micrograms bi-weekly. The arsenic and bismuth (bismuth sodium arsanilate was given once weekly intramuscularly. The dosage used was 0.03 to 0.09 grams.

Frankly, we do not know the optimal dose of vitamin B_{12}, however, we feel, due to the rapid excretion in the kidneys, a dosage of 500 micrograms given twice daily or, better still, divide the 1000 micrograms daily dose into 3-4 doses. Certainly these would by necessity be hospitalized cases.

The value of vitamin B_{12} administered orally has not been definitely established in the treatment of psoriasis. However, we are using some with good results in other skin diseases in children (to be reported later.) Sufficient time has not elapsed to give us any insight as to the problem of recurrences, the severity of recurrences and allied problems. However, it is natural to assume there will be recurrences, particularly if there is a vitamin B_{12} deficiency. Probably these recurrences can be effectively treated with smaller doses of vitamin B_{12} or a maintenance dose can be given orally. Frankly, I should like to have a larger oral dose available in less volume than the present.

In all, we have treated 35 patients with psoriasis by this method, these cases cover all the usual stages and varieties seen, with some very disseminated types. In this investigation no effort has been made in any case to which I have referred to limit or prescribe any specific diet.

Vitamin B_{12} in the dose used has caused no reactions. Very seldom a patient may complain of a feeling of warmth and a slight blush. I, being an experimental subject with B_{12}, have never experienced any reaction in 360 doses of 1000 micrograms each and a single dose of 5000 micrograms.

Case R. E. W.—White, male, 43 years. Has had psoriasis for 12 years. No relief. Has visited many physicians and several dermatologists to be told not curable. This patient presented himself with large plaques over almost entire body, extremities and scalp. Itching was severe. He was started on vitamin B_{12}, 1000 micrograms daily, plus 0.09 grams bismuth sodium arsanilate weekly. At end of first week, patient was relieved of itching and at end of 10 days, desquamation of lesions was very apparent. The vitamin B_{12} was changed to three doses weekly, then for two weeks twice weekly. The bisnamar was continued at weekly intervals for ten weeks. The patient was entirely clear at the end of three months.

CASE OF REV. W. L. M.—White, male, age 60. Generalized psoriasis of the face, scalp, body and extremities for 8 years. Itching was most severe and there was considerable disfiguring, enough so, he was not able to carry on his duties as a minister. He sought the advise of many physicians and dermatologists with no relief. We placed this patient on routine vitamin B_{12} and bisnamar therapy. In the first two weeks of therapy itching was relieved and the lesions began involuting. In two and one half months he is clear.

CASE MRS. J. G.—White, female, age 48. Psoriasis in large plaques on elbows and scalp for 5 years. Routine vitamin B_{12} therapy relieved itching in one week. At the end of three weeks the large plaques were almost entirely cleared.

CASE U. L. B.—White, male, age 38. Has had psoriasis for 6 months. Large serpiginous lesions on the face, body and scalp. Routine vitamin B_{12} therapy relieved him of the lesions on his face in its entirety and most of the other lesions. Itching was allayed on the second day.

*Vitamin B_{12} for all experimental cases was furnished by Merck and Company.

*Bisnamar, trade name Bismuth Sodium Arsanilate, Kremer-Urbans Co.

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Gamma Globulin and Its Recent Use in Bolivar County

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RETURNING TO his desk after an early summer vacation this year, Dr. A. L. Gray, chief of the Division of Preventable Disease Control of the Mississippi State Board of Health, hastened to look at the "spot" maps which his office keeps current on the incidence of communicable and preventable disease, and wondered whether trouble was brewing in the Delta. In the middle of June in the polio season, the "great crippler" showed recent advances. In Bolivar County from the first case of the year which occurred on the sixteenth of April, the number had increased through May and the first week of June to a total of ten. Knowing well the pattern which polio usually follows when making up an epidemic a rapid build up of cases in a small area, gradually swirling out from the vortex to envelop surrounding territory and ebbing at the center as it spreads—Dr. Gray asked himself if here might be the beginning of one of the dread epidemics which would shortly theaten, cripple, and bereave segments of this nation's population.

In this year of 1954 the supply of gamma globulin available to physicians, although still small, was greater than last year's supply. This stock of material was allocated by the Office of Defense Mobilization to state and local health officers to be distributed to physicians on the basis of local needs. So Dr. Gray, viewing the overall situation and charged with using wisely this gift of many individuals to the people of the nation, faced a grave responsibility and justly chose to share that responsibility. He immediately made a trip to Bolivar County and invited into consultation the physicians of the area most vitally affected and county health department personnel.

For those of you who were not present at that small but important gathering, I shall try to reconstruct for you the problem which presented itself from the thinking of this group.

There in Cleveland and surrounding area we had a pattern of polio incidence which might represent the beginning of an epidemic; and gamma globulin could be obtained for the area in an amount which would insure each child 15 years of age and under and each expectant mother of receiving the prescribed amount. The question before the group was whether the physicians wished to make it available to their people. On these physicians and their nurses would fall the task of administering the injections to several thousand individuals; and if injections were to be given, it was decided the matter should be carried out as soon and as rapidly as humanly possible in order to insure the maximum benefit from the prophylaxis. This would mean a greatly increased burden of work, for a short period of time, on already overworked doctors. The final decision rested with these physicians.

In the discussion of the matter several major points stand out. It seems that two years ago a wave of false optimism had carried along the story that gamma globulin was the answer to the polio problem. Now, that much of the information coming out of those areas where gamma globulin had been used extensively in 1953 was discouraging, nobody really knew how effective this weapon was. Statements had been made and printed that it is no answer at all to the problem. However, the researchers still maintained that it is an effective prophylactic agent. The National Advisory Committee for the Evaluation of Gamma Globulin in the Prophylaxis of Poliomyelitis[1] in its report on the use of the agent in 1953 had given this summary and conclusion; "The mass injection of gamma globulin carried out on a large scale in 1953 in the United States as a method to prevent paralysis in poliomyelitis was done as a public health measure in response to a widespread demand and not on an experimental basis. As such, attempts to draw conclusions regarding its efficacy have not been easy and in many instances, have been impossible. In any event, the methods of analysis of carefully compiled and extensive data on the use of gamma globulin in these epidemic areas and populations, where it might have been expected to be effective, did not yield statistically measurable results. Therefore, its preventive effect in community prophylaxis as practiced during 1953 has not been demonstrated. Also, no modification of the severity of paralysis by gamma globulin was shown. Nevertheless, the committee cannot say that the use of gamma globulin by mass innoculation produced no effect."

Some observers believed that gamma globulin had not been given early enough in the development of epidemics in 1953 to have given the greatest benefit. And no one present would say there is any contra-indication to the giving of gamma globulin as a prophylactic agent against polio. It was decided by this local group that gamma globulin might have beneficial results and that it was the only available weapon against the threat; that it could be had for the asking and effectively placed through redoubled efforts on the part of medical and nursing personnel during a period of one week. The medical profession responded in traditional form. Certainly, since no harm could be done by giving the agent, they thought it should be made available and would be worth the effort if one single case of paralytic polio could be prevented.

So the stage was set for mass inoculations of children under 15 and expectant mothers residing in Cleveland and within a seven-mile radius, to be given during the week of June 14-19.

Physicians handled the editing of publicity in an attempt to insure the desired response of the population to the project without increasing fear and inducing panic. They employed nurses and other helpers to augment their staffs; the health department asked for volunteer helpers; and everyone got out reserve supplies of syringes and needles, cotton balls and alcohol. Supplies of gamma globulin began to arrive at the health department and there divided among physicians. Quickly the project was upon us and the week seemed to run out amazingly soon because of the greatly stepped-up pace at which everyone worked. When at last the crowds came no more and the injections were tabulated we found that a total of 5,681 injections had been given.

There were several aspects of this event which had not been fully anticipated locally. By administering gamma globulin to so many people at so few stations in such a short time we had shattered several of the rules of conduct offered by the National Foundation for Infantile Paralysis. Great crowds had collected, especially at the health department and these people could not all be taken care of rapidly and dispersed to their homes. Many families came on several successive days before they were seen. Thus many children who had not been associated previously were brought together and stirred well. Many became over-tired and over-wrought. We trembled at the possible outcome of this now unavoidable but seemingly flagrant disregard of good common sense rules. However, we were spared any mass disaster as a result of this mass converging of our population.

Now if the National Advisory Committee for the Evaluation of Gamma Globulin in the Prophylaxis of Poliomyelitis could draw no definite scientific conclusions regarding the efficacy of the agent from the mass of data it had available from the 1953 trials, I am sure I would not be expected to draw definite scientific conclusions regarding its value from our little experience in Bolivar County. But I do wish to give you the follow-up figures on the incidence of polio in our project area since that time, June 14-19.

One case, occurring in a 16-year-old antepartum who had not received an injection of gamma globulin, was reported on July 7. One case, occurring in a child who had received gamma globulin on June 14, was reported on September 17. Meanwhile in that part of the county not included in the project the number of cases increased.

In Greenville, Miss., physicians had a similar experience with mass inoculations about one month later than ours. Seventeen cases were reported from July 1 through July 24. Gamma globulin injections were given July 21 to 24. Two cases then occurred between July 24 and August 1, and investigation showed that neither victim had received gamma globulin. Two additional cases occurred from August 1 through September 11, neither patient having had the gamma globulin.

Some of the most recent findings and statements by researchers seem to support the indications of these two small projects.

In his Report of Physicians, Summer 1954[2], Dr. Kenneth S. Landauer, Assistant Medical Director, National Foundation for Infantile Paralysis, said:

"Gamma globulin is still the only proved weapon now available to physicians for prophylaxis against paralytic polio.

"The basic scientific evidence established in 1951 and 1952 field trials that gamma globulin can prevent paralytic polio has recently been not only re-affirmed but strengthened, so that its usefulness seems even greater than we formerly believed."

At the recent meeting of the AMA, Dr. W. McD. Hammon and his associates presented new data derived from their follow-up laboratory studies:

"Gamma globulin[3] now appears to be more effective than previously reported in protecting groups and individuals against the effects of the polio virus. Continuing laboratory studies indicate that protection begins earlier and lasts longer than indicated by clinical data alone. A significant degree of protection against paralysis or modification of residual paralytic involvement resulting from it has been demonstrated to begin probably within the first week after injection of patient with gamma globulin (in doses of 0.14cc per pound of body weight) and to endure up to eight weeks thereafter. The figures given result from a reanalysis of data collected in controlled field studies conducted in 1951-52 in Utah, Texas and Iowa. Previous reports of these studies have been limited to cases diagnosed entirely on clinical criteria. In the present analysis only cases confirmed by laboratory evidence of the presence of poliomyelitis virus or specific antibodies are included. It is concluded that the data presented have more significance than those collected from general use of gamma globulin without suitable controls."

So when the battle against polio is eventually won, it seems quite likely that gamma globulin will be remembered as the weapon that held the fort until the big guns could be brought up.

BOLIVAR COUNTY CASES OF POLIO—1954

Case Number	*Date Occurred*	*Place*
1.	April 16	Cleveland vicinity
2.	May 1	Cleveland
3.	May 3	Cleveland
4.	May 4	Cleveland
5.	May 15	Shaw vicinity
6.	May 26	Cleveland
7.	June 2	Cleveland vicinity
8.	June 3	Cleveland vicinity
9.	June 7	Cleveland vicinity
10.	June 12	Merigold vicinity
11.	June 28	Choctaw vicinity
12.	June 29	Scott
13.	July 2	Mound Bayou
14.	July 7	Cleveland
15.	July 18	Rosedale
16.	July 21	Hushpuckena
17.	July 28	Shaw vicinity
18.	August 3	Benoit vicinity
19.	August 4	Shelby vicinity
20.	September 17	Cleveland

Statistics on Gamma Globulin Injections

Total—5,681
Physicians—1430
Health Dept.—4251
Colored—2709
White—1542

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1. and 2. Public Health Monograph—No. 20 U. S. Dept. Health, Education & Welfare May, 1954.

3. Report to Physicians; Kenneth S. Landauer, M.D. Asst. Medical Director NFIP. Publication of National Foundation for Infantile Paralysis.

NEW CLOSED-CIRCUIT MEDICAL TV SHOW

"Videclinic"—a special closed-circuit television program to bring new advances in medicine to physicians quickly will be presented coast to coast on February 9 by the American Medical Association.

Dr. George F. Lull, secretary-general manager of the A.M.A., announced that the clinic will be viewed by nearly 18,000 doctors in at least 30 cities, the largest single closed circuit television audience of its kind.

Brain Abscess Associated with Congenital Heart Disease*

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BRAIN ABSCESSES occur in association with congenital cardiac defects which permit venous blood to flow into the arterial circulation without passing through the pulmonary circulation. This condition is called paradoxic brain abscess.

This condition is emphasized as rare in the case report and the excellent review of the literature by Cohen, Bergman and Malis in 1951. These authors collected forty cases, living and dead, including their case who survived. Several additional cases all verified by autopsy have been added to the recent literature.

Hanna found six cases in 160 fatal cases of congenital heart disease. Abbott reports seven fatal cases in 1000 congenital heart lesions and Robbins found three abscesses in thirty-three fatal cases. Maronde reports eleven cases autopsied in a nine-year period from the Los Angeles General Hospital in eighty-one congenital defects excluding cases of patent ductus arteriosus.

Up until the present time I believe only three cases have been reported as cured elsewhere. Galbraith treated five cases with three survivals. A recent discussion of this problem at the Southern Neurosurgical Society meeting indicated that experience with this is much more common than one would gather from the review of the literature about this subject. A patient of Smolik, Blattner and Heys in St. Louis (1946) was treated by surgical drainage and sulfonamides and was the first survival case. The cultured organism was a Hemophilus influenzae. A case of Cohen, Bergman and Malis at Mt. Sinai was treated with penicillin and tapping, followed later by excision and drainage. Beller at the Hadassah Medical College in Jerusalem reported a case of cerebral abscess in a six-and-one-half-year-old boy with tetralogy of Fallot first treated with streptomycin and penicillin. The abscess was removed by excision after it was tapped and decompressed by drainage of 40 cc. of pus from within a well delineated capsule. The cultured organism from this abscess was hemolytic streptococci.

In a group of 24 consecutive brain abscesses treated in Jackson between 1948 and 1953, two cases of paradoxic brain abscess were treated and cured.

BRAIN ABSCESS
1948-1953
Chart I

	Cases	Percent
Traumatic Origin	3	12.5
Unclassified	8	33.3
Mastoid Extension	2	8.3
Frontal and Ethmoid Sinus Extension	6	25
Cardiac Septal Defect	2	8.3
Pulmonary Suppuration	3	12.5
Total	24	100

Chart II

	Cases	Percent
Admitted	24	100
Surgical Deaths	3	12.5
Non-surgical Deaths	3	12.5
Survived and Useful Recovery	18	75

CASE REPORT NO. I

Ten days prior to admission to the Mississippi Baptist Hospital on October 10, 1951, this thirteen year old eighth grade schoolboy had a severe headache for three days. His physician admitted him to the local hospital and he received penicillin for three days. He felt better and improved but five days later he developed a transient episode of jerking without adequate description of the reaction. Both attacks were associated with vomiting. A spinal puncture was done by the family physician on the day of the first jerking attack and a pressure was not recorded. The Pandy was slightly positive. The cell count was 21 with 75 per cent lymphocytes. Following the puncture he was relieved of the nausea and headache. The following day, October 7, 1951, the nausea and vomiting returned and he was readmitted to the local hospital. A second lumbar puncture was done and the initial pressure was 300, the cell count 22, and the total protein was 121 milligram per cent. He had been progressively drowsy during this illness, especially in the mornings, and had been depressed below his usual level of spontaneous behavior. The pediatrician who has looked after this patient through the years had been aware of the syndrome of paradoxical abscess having had a case develop in a child under his care following tonsillectomy and adenoidectomy in 1935. Careful records were available from birth. The original notes state that he was a premature baby weighing four and three-quarter pounds and there is a congenital defect of the heart. The cyanosis gradually disappeared. Two electrocardiograms made in November 1938 showed a right axis deviation. He was seen in consultation in New Orleans and a diagnosis of congenital heart disease was made without further clarification. Through the years this child had difficulty with repeated sore throats and the tonsil and adenoid tissue was treated with x-ray therapy on one occasion; otherwise, each attack of tonsillitis was treated with restricted activity and antibiotics. In June 1948 a cardiac consultant suggested a patent ductus arteriosus should be considered. In August of the same year a diagnosis of interventricular septal defect was made at the Mayo Clinic. He continued to have frequent nasopharyngeal infections and had been having a chronic nasal discharge and sore throat before the present acute symptoms developed. He has had slight exertional dyspnea all of his life. The patient was referred with a diagnosis of brain abscess by his physician.

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*Presented before the Section on Surgery at the eighty-sixth annual session of the Mississippi State Medical Association, Jackson, May 11-13, 1954.

On examination the patient lacked spontaneous interest in his condition and during the examination he gave an impression of lethargy from which it was difficult to arouse him. His parents state that this was not his usual behavior and that he was usually keenly alert. Other than this on neurological examination, the findings were normal. On general physical examination the patient had a high palate; speech was nasal in quality associated with the palate variation. The tonsils were large and moderately inflamed. The heart demonstrated a loud systolic murmur which was heard well on both sides of the sternum. Cyanosis and clubbing were not observed. Plain x-rays of the skull were normal. A chest x-ray showed alteration of the cardiac shadow with enlargement of the pulmonary arterial segment. The aorta did not appear to the left of the midline suggesting dextro position.

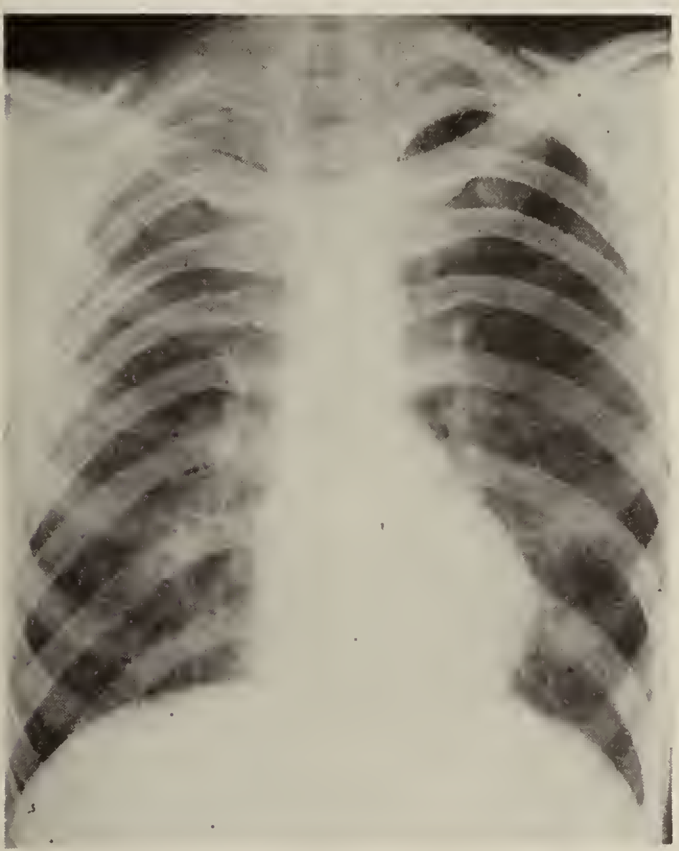

FIGURE I

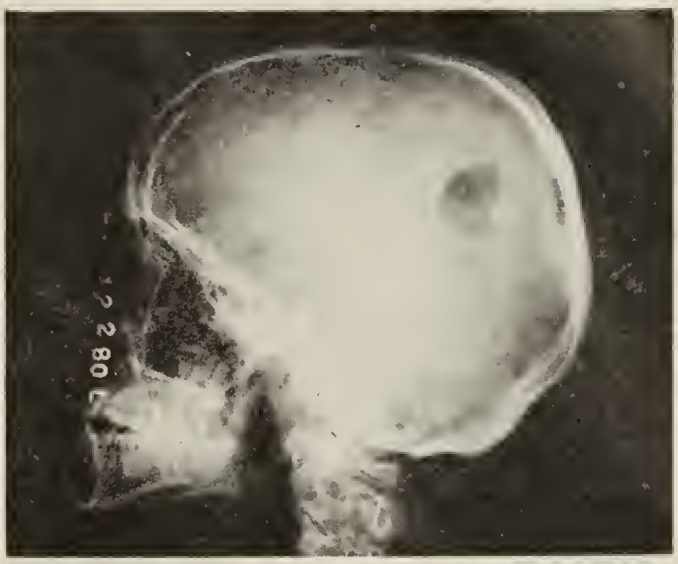

FIGURE II

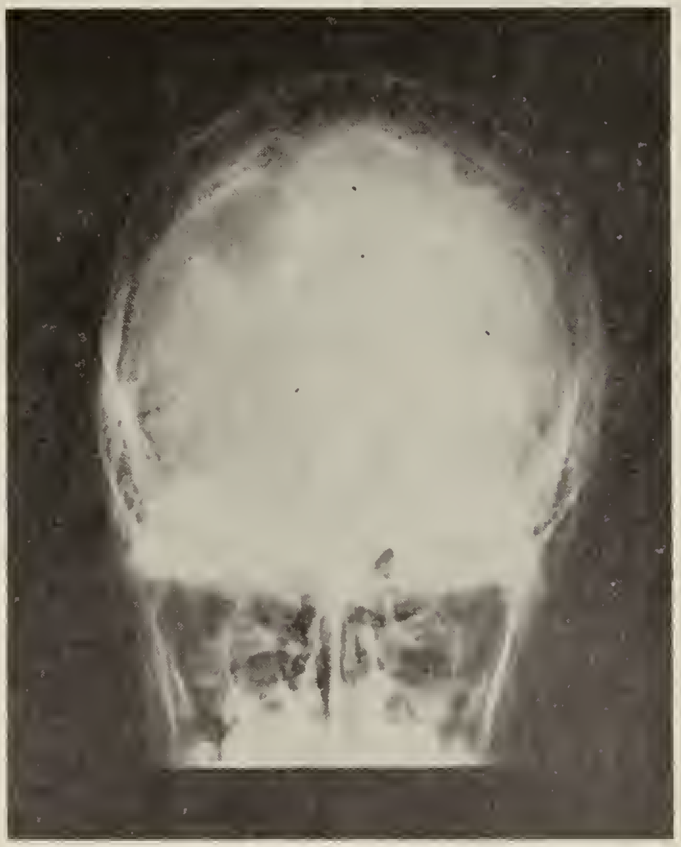

FIGURE III

The following day, October 11, 1951, the patient was taken to surgery for a ventriculogram. Bilateral burr holes were made in the parietal area and on inserting a needle into the right side an abscess was encountered about 2 cm. below the surface of the brain. The wall was thick and about 60 cc. of pus was removed and cultured. Penicillin, 100,000 units, was placed in the abscess cavity and 15 cc. of air. The brain was not under pressure on completing this exchange and the wounds were closed with silk sutures. X-rays, which clearly outlined the parietal area abscess, were made. (Figure II and III) The abscess was tapped and some pus evacuated each day and 12,500 units of penicillin placed in the cavity in one cc. of saline each day for five days He improved rapidly. On October 18, 1951, seven days later, a craniotomy was done and a large abscess was excised. The lesion measured 4 cm. in diameter and was thick walled. On direct smear many gram positive cocci in chains were identified and an anaerobic streptococcus was isolated from culture. (Figure IV) This is a photomicrograph of the wall of the abscess depicting the typical suppurative appearance. Following this procedure he made a satisfactory recovery. He was discharged on the twelfth postoperative day and returned to school in one month.

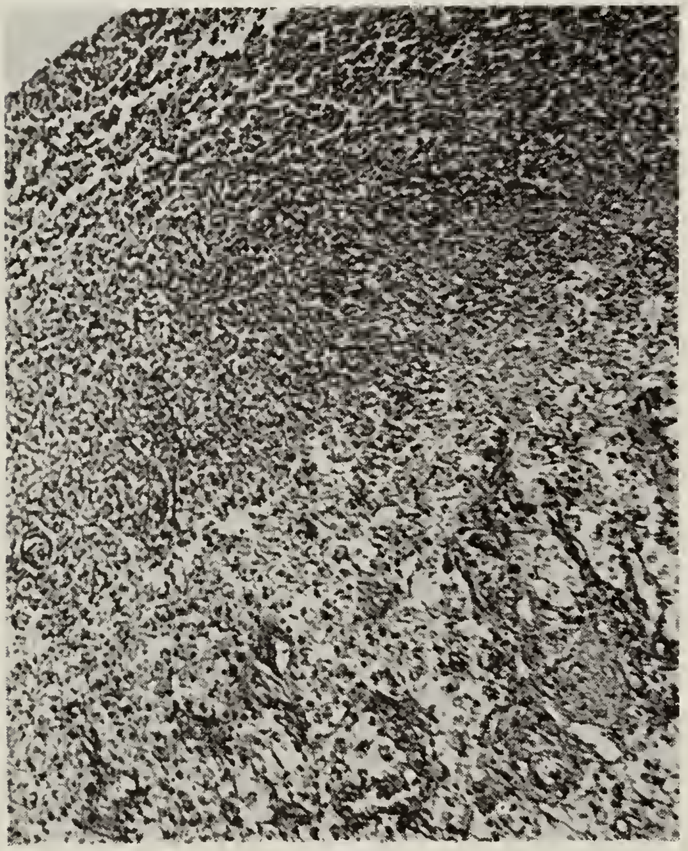

FIGURE IV

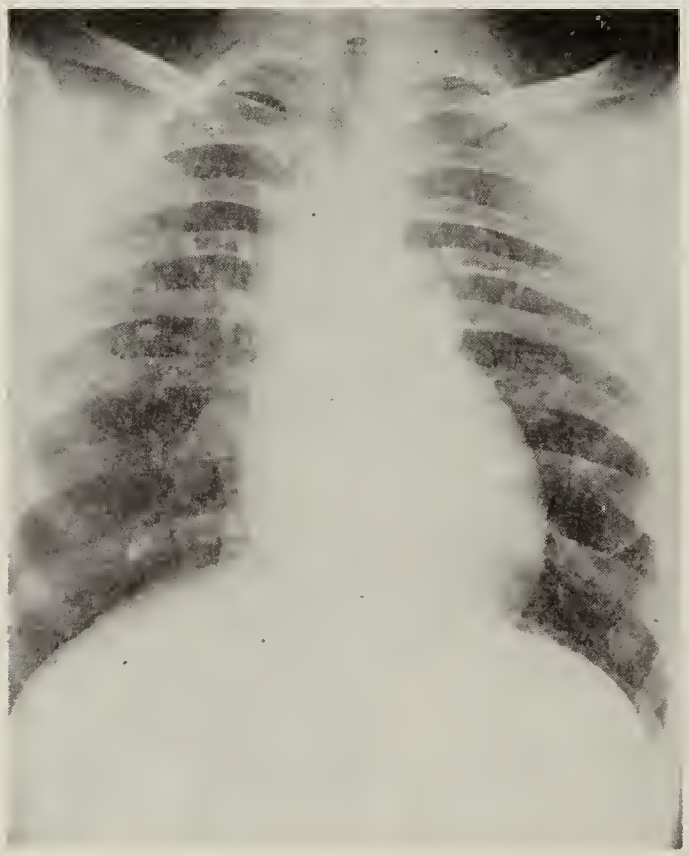

FIGURE V

Case Report No. II

On May 16, 1952, a twenty-seven-year-old white male movie projector operator was admitted to St. Dominics Hospital in Jackson with a history of headaches for ten days and vomiting for one day. He had been known to have a heart murmur all his life and with exertion he developed cyanosis and dyspnea. For this reason he was never able to run or participate in active sports. The headache began with a sudden pain in the left parietal region. He had noticed blurring of vision during the ten days of headache.

On examination the lips were moderately cyanotic and he had a herpes simplex. A right homonymous hemianopsia could be demonstrated. Blood pressure was 120/60. The heart was not enlarged but a systolic murmur could be heard on both sides of the sternum. Clubbing was present and the nail beds were cyanotic. Urinalysis was normal. Red blood count was 6,777,000 and the white blood count was 16,000 with normal differential. The day after admission, May 17, 1952, a lumbar puncture was done. A pressure of 230 was measured and the cell count revealed 72 with 17 polymorphonuclear cells and 55 lymphocytes. The total protein determination was 130 mg. per 100 cc. (Figure V) The chest x-ray showed a small aortic knob and slight right ventricular hypertrophy dextro position of the aorta suggesting a tetralogy of Fallot. X-rays of the skull were normal. The electrocardiogram revealed a right ventricular preponderance which, with the small aortic knob, is consistent with a diagnosis of tetralogy of Fallot. A diagnosis of spontaneous thrombosis on the basis of congenital heart disease with polycythemia was made. A phlebotomy was done and 500 cc. of blood was withdrawn. The following day the patient was worse. He became semicomatose and the respiratory rate was increased to 25 with periods of apnea. A neurological consultation was requested and the patient was transferred to the Mississippi Baptist Hospital for surgery. Using local procaine, bilateral parietal area burr holes were made. The dura was opened and the brain was observed to bulge through the openings. A brain needle was inserted into the ventricle on the right and on the left side a brain abscess was entered about 4 cm. from the surface of the brain and 50 cc. of pus was drained out. A few cc. of air and 100,000 units of penicillin in one cc. of saline were injected into the abscess. The brain was still too tense for safely filling either the abscess or the ventricles. He felt better and was more alert after relieving the pressure in the abscess.

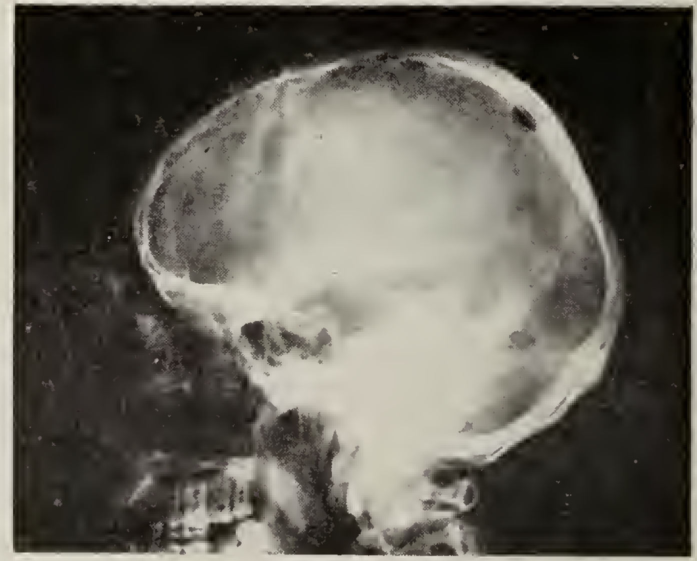

FIGURE VI

The wounds were closed and he was taken to x-ray for routine projections. Only a few cc. of air could be demonstrated in the abscess cavity. (Figures VI and VII For several days the headaches were diminished and his level of consciousness was raised. He was maintained on intensive intramuscular antibiotic therapy using 2 grams of streptomycin and 1,200,000 units of penicillin daily. The culture of the pus grew. Hemophilus influenzae organism. On May 28, 1952, a craniotomy was done. After turning a bone flap in the left parietal area the dura was opened. The brain was under some tension and bulged. The convolutions were flattened. The left lateral ventricle was tapped to reduce pressure and as the brain relaxed another needle was used to outline the abscess which was entered and watery purulent fluid removed. A 5 cm. in diameter incision was made over the abscess which lay 3 cm. deep in the parietal area. The brain around the abscess was soft and edematous. The wall of the abscess was friable with a definite but poorly organized capsule. The abscess was removed by excision and suction and a quantity of soft edematous brain around it was also sucked away. The brain was still moderately tight and for this reason the dura was left open along the lower border of the craniotomy overlying the temporoparietal area and the bone flap was not replaced. Penicillin, 100,000 units, was put in the wound and a size 8 urethral catheter was left in the abscess bed for instillation of penicillin. The scalp was closed with sutures in the temporalis muscle, galea and skin. Penicillin, 12,500 units, was placed in the abscess bed by catheter injection twice daily for two days and the catheter was then removed. (Figure VIII) The typical suppurative changes in the wall of the abscess are illustrated by this photomicrograph. The convalescence of the patient was satisfactory and he was discharged as ambulatory with only a homonymous hemianopsia as a neurological finding on June 10, 1952. He returned to his work as a projector operator in six weeks.

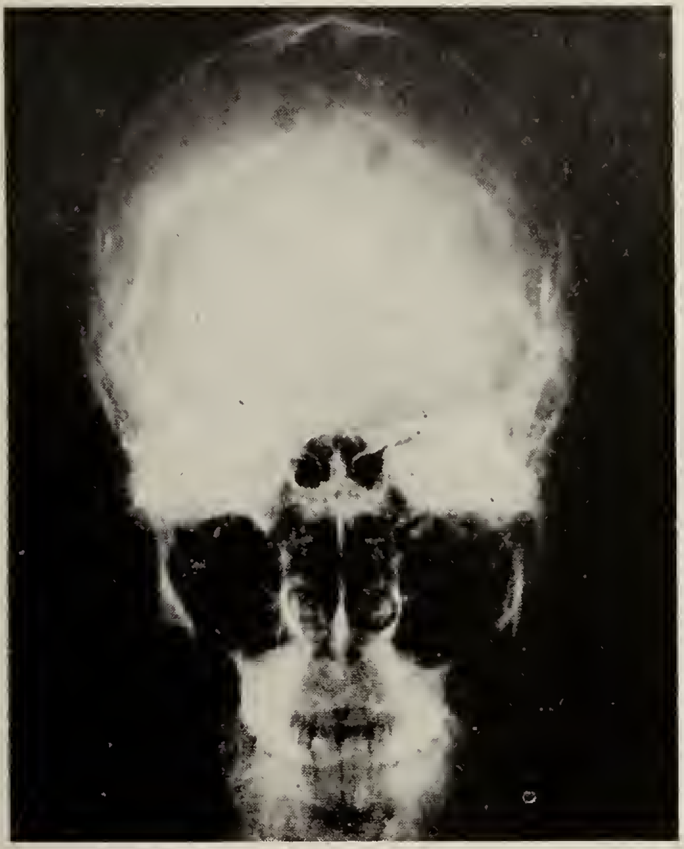

FIGURE VII

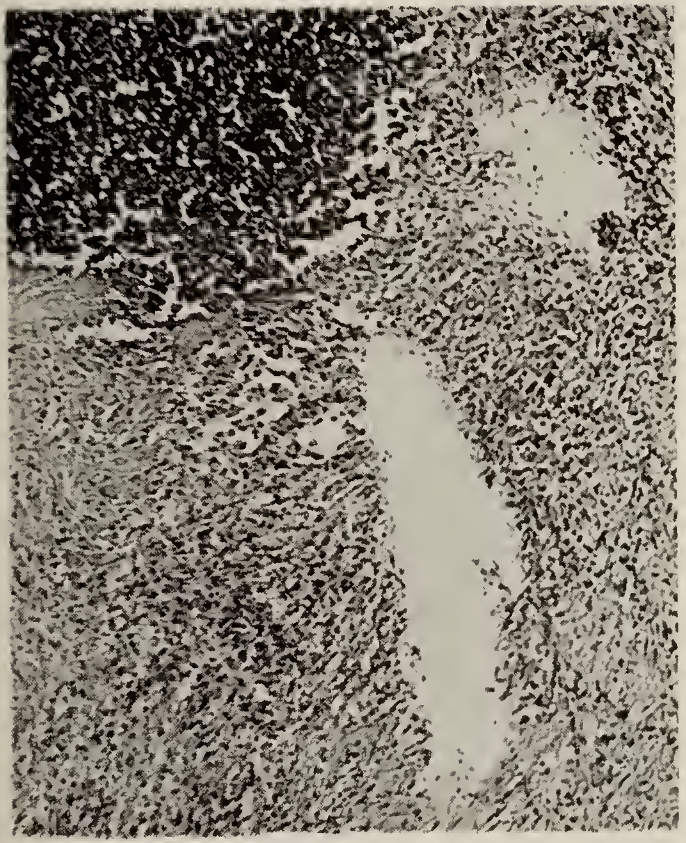

FIGURE VIII

DISCUSSION

Two cases of paradoxic brain abscess have been reviewed, the first occurring in a patient with a patent interventricular septum and Eisenmenger's Syndrome, and the second occurring in a tetralogy of Fallot. I believe the failure of physicians to recognize this syndrome may be responsible for the small number of cases referred to neurosurgeons. I am glad to be able to add two cases to the total number of cured cases reported. Cohen, Bergman and Malis in reviewing the literature found in three out of forty cases the abscess was multiple. In only four out of forty cases a definite capsule was described although in only four cases was a lack of capsule noted. Intraventricular rupture occurred in twelve of the forty collected cases.

CONCLUSION

The predisposition for abscess to form in the brain rather than other organs can be entirely related to the absence of adequate collateral circulation in brain tissue. A small arteriole or capillary infarct may result in sufficient tissue necrosis to supply a fertile area for rapid bacterial growth. In other organs the rich anastomotic blood supply may supply a rapid and adequate defense against suppuration. Cerebral tissue may be a more suitable media for bacterial growth. Bacterial emboli and abscess may occur in other organs, such as the kidney, but the abscess mass as well as surrounding tissue edema do not have the same serious effects in renal tissue. Stasis of circulation has been suggested as a possible factor in the occurrence of paradoxical brain abscess. The importance of emphasizing this rare condition is not to call attention to its infrequency but rather to emphasize the possibility of paradoxical abscesses complicating minor infections in patients with congenital septal defects and to offer the suggestion that all infectious conditions in these patients be treated with antibiotics. Cerebral suppuration should be suspected with the occurrence of any neurological symptoms and early therapy may allow the brain to heal the infection or help to localize and limit the spread of the suppuration. Early diagnoses, a more aggressive approach in the surgical therapy of brain abscess, and the availability of effective antibiotics, should make a larger percentage of paradoxical brain abscess curable.

In recent months I have seen one child with partial hemiplegia associated with cyanosis and tetralogy of Fallot and the clinical neurological symptoms of the patient cleared completely on intensive antibiotics therapy without surgery.

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DISCUSSION

Dr. James L. Dunagin (Hattiesburg)—Personally, I am grateful to Dr. Neill for bringing this subject to our attention. Up to the present time I have not had such a case in my practice. Consequently, I find myself somewhat in the position of the elderly spinster who was always dispensing remedies to young mothers for their ailing offspring.

Mr. Webster, in his treatise on words, describes a paradox as any phenomenon or action with seemingly contradictory qualities or phases. I am not sure why this condition is called paradoxic brain abscess. Dr. Neill has pointed out that the relative stasis of circulation predisposing to thrombus and embolus formation, with subsequent localized sepsis, is thought to be most important in the basic etiology. I notice that in the title of his presentation he has avoided use of the term, "paradoxic," and I wonder if he might agree with me that the condition is really not quite so "paradoxic."

(I should like to emphasize the fact that we are dealing only with right to left shunt congenital heart disease.) One might think on superficial examination that the first case presented would not qualify as cyanotic congenital heart disease since there was no history of symptoms suggestive of heart disease and since there was no apparent cyanosis on the physical examination as reported. However, we must remember that patients with the so-called Eisenmenger Complex very commonly fail to show any demonstrable cyanosis until late childhood or adolescence, and even then the degree of cyanosis is not so intense as that seen in tetralogy of Fallot. Even the cyanosis in tetralogy sometimes does not appear until the latter part of the first year, and quite commonly at the second to fourth month when the ductus arteriosus normally closes off.

It may be of interest to point out the essential structural differences between the Eisenmenger Complex and tetralogy. Dr. Neill has shown a slide illustrating the interventricular septal defect, the pulmonary artery and the hypertrophied right ventricular wall of tetralogy. In addition to these features there is an aorta which straddles the septal defect receiving arterial blood from the left ventricle and venous blood from the right ventricle. In the Eisenmenger complex one finds these same features except that instead of a narrow pulmonary artery there is a normal enlarged pulmonary artery. The chest x-ray usually reveals increased pulmonary markings. Opaque substance injected into a vein will often outline the pulmonary artery and the aorta simultaneously. In these patients a reduction in circulation time is indicative of a right to left shunt and is consequently sometimes of help in dealing with a case that may or may not have such a shunt.

Let us remember that thrombus formation in any organ in the body is not too uncommon in cyanotic congenital heart disease patients. Even though these children may do surprisingly well with the usual contagious diseases their frequent upper respiratory infections deserve our most eager and energetic attention.

Dr. Neill's second case shows that no matter how long these patients may live or how lightly they may appear to be afflicted they always continue to be subject to complications.

Surely this excellent presentation by Dr. Neill will remind us all in the future to suspect brain abscess in any patient who has apparent congenital heart disease combined with neurological symptoms.

Urology in General Practice*

V. F. CAREY, M. D.
Greenville, Miss.

Two types of urologic patients are seen in general practice: 1) those the practitioner will treat himself, and 2) those patients he will refer for complete urological work-up. The criteria for referral are those with symptoms to suggest potentially serious diseases that demand early treatment and/or surgery. These are: 1) hematuria; 2) repeated or persistent pyuria; 3) abnormal masses; 4) inability to void or moderate change in voiding pattern; 5) renal or ureteral pain.

HEMATURIA

All cases of hematuria, be it microscopic or gross, desire complete and, if necessary, repeated urological work-up until the initiating cause is found. This will be one of the greatest assets for early discoveries of either neoplasms or infections, giving one a chance for much more conservative and curative surgery. Hematuria can truly be classified as the watch-dog of the urinary tract. Anything more than six red cells per low power field of uncentrifuged urine can be classified as hematuria and is abnormal. Even the presence of persistent occasional or few red blood cells in the urine should be investigated. Again I wish to emphasize the importance in the investigation of all cases of hematuria.

REPEATED OR PERSISTENT PYURIA

Recurrent or persistent pus in the urine usually points to a serious or potentially serious urological condition. The importance of investigation of repeated attacks of cystitis in the female cannot be over-emphasized. This pyuria may furnish the clue for early diagnosis and correction of renal calculi, congenital obstruction with hydronephrosis, or early tuberculosis. Often the only symptom of progressive asymptomatic hydronephrosis is microscopic pyuria. Early diagnosis from such signs as pyuria can prevent a life as a urological cripple. I wish to emphasize here the importance that urine for examination from a female be a catheterized specimen.

With the modern day antibiotic sensitivity discs, a minimum of bacteriology is necessary to find the drug of choice, usually it not being necessary to identify the offending organism. Ideally, however, identification of the offending organism is of importance for a more permanent cure. All obstruction of the urinary tract should be overcome. Tuberculosis should be ruled out by guinea pig inoculation or by cultures. Persistent pyuria in the pediatric age group is most often due to congenital deformities and these need early correction.

ABNORMAL MASSES

Any abnormal masses in the region of the kidney or abdomen should be investigated for the possibility of a tumor. Most often Wilm's tumor in children is noted first by the presence of an abdominal mass. Hypernephroma and cysts often show as their original symptom the presence of a mass as does a hydronephrosis. A mass in the lower abdomen may be a distended bladder, retentive diverticulum, or carcinoma. You would be surprised the number of patients and amount of money spent on gastro-intestinal studies for lower abdominal masses that are finally diagnosed by the passage of a catheter and obtaining 600 to 1500 cc. of urine. With a mass proved to contain urine, one should look for either obstructive and/or neurological disease.

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*Presented at the semi-annual meeting of the Delta Medical Society, October 13, 1954.

Testicular masses should always be considered malignant until proved otherwise. The only hope for cure of carcinoma of the testicle is very early surgery. Any mass along the urethra should be investigated for the possibility of carcinoma.

Inability to void or change in voiding pattern usually indicates obstructive, neurological or inflammatory disease. Everyone who has experienced the discomfort of a full bladder for any length of time due to inconvenience of voiding, as at a football game, can easily understand the emergency of an acute retention. However, infection and congenital anomalies are quite often associated with change in voiding habit, and this early may be the only symptom. Tuberculosis should always be thought of with this symptom present.

Renal or ureteral pain often means obstruction due to stones, tumors, strictures or anomalies. Often this pain is only a dull ache associated with gastro-intestinal upsets; often the pain is sharp, severe and colicky, typical of ureteral colic requiring heavy sedation. Either type should be investigated.

If the above represents what should be referred, then is there anything in urology left for the practitioner to do? The greatest number of urological patients do not fall in the above categories and these can be easily and adequately handled by any physician. By far the most common urological cause for anyone seeking medical aid is the usual cystourethritis in the female. This is most commonly due to a stricture of the urethra. The urine most often is negative on examination. Pandendoscopic examination of the bladder and urethra reveal a urethritis and trigonitis. This is treated by interval dilations to No. 30 F. of the urethra and antispasmodic drugs. Frequent repeated bouts of cystitis should have investigation by pyelograms, either retrograde or intravenous, and a panendoscopic and pre-x-ray administration of castor oil to empty the gastro-intestinal tract of its contents is essential for obtaining good films of the urinary tract. With 35 per cent urokon a safe, excellent intravenous media is available.

Prostatitis is the next most common urological disorder seen. In the acute stage characterized by fever, urethral discharge and pyuria, antibiotics should be administered with bed rest and forced fluids. No instrumentation nor prostatic massages should be undertaken at this time. Later after the disease has cooled down, or on chronically infected prostates, then interval prostatic massages and soundings are of value.

Small ureteral calculi can be watched with interval sedation and x-ray. However, once the stone does not continue to drop in the ureter or if obstruction occurs as shown by intravenous pyelogram, then active cystoscopic or operative treatment is indicated.

It is repetition but I wish to warn about the following: Investigate thoroughly all cases of hematuria, including a complete urological survey, even if one thinks he has found the cause of hematuria by a precursory examination.

Recurrent pyuria and cystitic attacks should be treated with a complete work-up for the cause and not by just a shot of penicillin as each attack recurs.

Any mass in the region of the urogenital tract should be investigated as to its cause.

The origin of any unexplained pain that may be of urologic origin should be determined.

And any retention or change from normal voiding pattern in any age group needs an answer.

Over 85 per cent of all urological complaints can be diagnosed and the liberal use of x-ray in conjunction with a good history and physical examination in these patients will be the facility for their diagnosis. Most men in general practice have x-ray units that will take suitable urological films. All have the ability and the opportunity of examining these patients. By this combination, then earlier diagnosis and more satisfactory and lasting results will be obtained from patients with urological complaints.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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EDITORIALS

EXPERTS TO ACS MEETING

Dr. Felix J. Underwood who has served as head of the American Cancer Society, Mississippi Division, for many years, retired from active chairmanship and Dr. W. H. Parsons of Vicksburg is taking over.

Dr. Parsons is thorough, able and outstanding in the medical profession and will be diligent in the fight against cancer. He is profoundly interested in all phases of the cancer problem. Mrs. Wates and her staff are on the job ceaselessly. The cancer problem is one of our biggest and most difficult. Cancer must be conquered. We must use all the means we now have to save the 24,000,000 destined to die by cancer.

Our immediate opportunity and challenge is to hear three of this nation's most eminent cancer experts—Dr. Ravdin, Dr. Cattell, and Dr. Burch, who, Dr. Parsons announces, will present discussions at the annual scientific session of the American Cancer Society, Mississippi Division, on February 1. The place is the Robert E. Lee Hotel, beginning at 3:00 p.m. This meeting should rival the state medical convention in attendance.

TAKE THOU

The drink problem in the United States is one of our most serious. The consumption of alcohol as a beverage is incompatible with the machine age in which we live. Upon the medical profession rests a great responsibility for solving this problem. Although it has been with us multiplied years, its solution from a preventive standpoint is scarsely touched. Research, education, clinical observation, and spiritual understanding are all resources required to solve it. Its devastating consequences are striking at the social and economic life of every nation. Alcoholics Anonymous has employed an effective curative method.

About three years ago we wrote a prescription for a young man as follows: "You, your wife and two fine sons, go to your little church by the side of the road and attend every service for six months." This was in lieu of the sentence to Whitfield for six months that we had contemplated. He and his family did as directed. Since that time liquor has been taboo for this young husband and father, and happiness and prosperity have been steadily on the gain in the home.

WE ALL CAN HELP

Heart diseases still take the greatest toll of human life each year. The attention of the medical profession and the people in general is turning to this illness in all sincerity. Research, observation, and prevention are the challenge. The prevention of acute infectious diseases throughout childhood will no doubt lessen heart diseases of later life. Their control and treatment in early stages may make a telling difference. Surgery is also an increasing factor in the heart case. Work and worry have been accused of being the cause of many heart ailments. It is doubtful whether they can be proved to be the arch offenders supposed, however.

An interesting article in the *Heart Bulletin* on congestive hear failure, reminds us of a little boy about six years old who had been sent home expecting to die of congestive heart failure. After a thorough treatment for hookworm he recovered and is in fine health, now in his thirties.

Mississippi's Heart Association is on the way to doing a fine work in our state. We have excellent men behind it. Research can be done in our state, and even in the rural communities about as well as anywhere. Dr. Arthur Guyton has done a steady work in heart disease. A scholarly young man in the field of medicine, he is a research man of the first order. We believe he will put Mississippi and our medical school on the map in the field of heart disease. We should pledge our assistance to all who are organized to stop the big death toll from heart disease.

News and Comment

MSMA BUILDING SITE PURCHASED

Mississippi's Executive, Governor Hugh White, receives the association's check as he delivers the deed for the one-acre building site near the new medical center in Jackson. Participating in the ceremonies, left to right, are, Dr. H. C. Ricks, delivering the check, and Dr. James Grant Thompson, receiving the deed. Rowland B. Kennedy, Mississippi State Medical Association executive secretary, and E. J. Yelverton, State Building Commission secretary, observe the transaction.

Carrying through one of the most important mandates of the 86th Annual Meeting, officers of the Mississippi State Medical Association have purchased a one-acre building site near the new medical center at Jackson.

Acting for the association, Dr. James Grant Thompson, Jackson, chairman of the Building and Planning Committee, and Dr. H. C. Hicks, Jackson, secretary of the Council, concluded a transaction with the State Building Commission securing for the association 183 front feet on Riverside Drive, just off North State Street as a site for the association's projected permanent building.

Drs. Thompson and Ricks received the deed from Governor White during brief ceremonies in the chief executive's office recently. The total cost of the acquisition was $12,500, the amount authorized by the House of Delegates.

Acting on a Mississippi State Medical Association petition, the Jackson city government re-zoned the land for office building construction last week.

O-C CONFERENCE

The second annual Conference of Officers and Committees of the association will be held in Jackson on January 19, in the Victory Room of the Hotel Heidelberg, according to Dr. Cummings H. McCall, Gulfport, President. The meeting is concerned in its entirety with non-scientific association business.

Dr. McCall pointed out that the House of Delegates at the May 1954 meeting urged a continuation of these conferences. He stressed that ". . . the meeting is open to every member of the association and I would personally feel gratified if the attendance were to equal that of an annual meeting." A well-rounded program, slated to begin at 10 a.m. on the morning of January 19, to continue through until 4 p.m. that date, was announced. Featured topics will be the new medical school, professional liability insurance, national legislation affecting medicine, the new three-prong medical service program, a report on progress in planning the MSMA building and a four-paper public relations panel.

The conference will be recessed at noon for a luncheon on the Heidelberg Roof. The luncheon speaker will be a top-flight executive in television, who will discuss television as a medium for medicine's story. President McCall will address the afternoon session in summary of the over all program of the association.

The announcement continued that ladies of the Auxiliary were especially welcome at all sessions of the conference and the luncheon. Programs are being mailed to every member of the association in early January. The tentative program is as follows:

10:00 a.m.

Call to order—Victory Room—Cummings H. McCall, M.D., President, presiding

Invocation

Orientation and Purpose—Dr. McCall

"Your New Medical School"—Temple Ainsworth, M.D., Chairman, Committee on Medical Education

"Professional Liability Insurance—A Dilemma"—George E. Twente, M.D., Secretary

"National Legislation—Your Problems and Policies", —Panel A. Street, M.D., Moderator
  Mr. C. Joseph Stetler, Director, AMA Law Department, Chicago

Luncheon—Heidelberg Roof
  "Television as a Medium for Medicine's Story"—Mr. Jay Scott, General Manager, Station WJTV, Jackson

Recall to order—Victory Room
  S. Lamar Bailey, M.D., President-elect, presiding

"Your New Task Force"—Lawrence W. Long, M.D., Chairman, Committee on Medical Service

"Planning for Progress"—James Grant Thompson, M.D., Chairman, Planning Committee

"Big PR for Small Societies"—Panel— H. C. Hicks, M.D., Moderator
  I. "Winning Friends With Forums"—Raymond F. Grenfell, M.D.
  II. "Putting PR in Office PRactice"—Guy T. Vise, M.D.
  III. "Fees Can Be Friendly"—C. D. Taylor, Jr., M.D.
  IV. "Mediation and Audit Committees—Public Confidence Builders"—Duward L. Blakey, M.D.

"The President Reports"—Cummings H. McCall, M.D.

4:00 p.m.

Adjournment

ACS ANNUAL MEETING

On Tuesday, February 1, the Mississippi Division, The American Cancer Society will hold its annual meeting at the Robert E. Lee Hotel in Jackson.

On Tuesday, beginning at 3:00 p.m., the scientific session will be presented by three of our nation's most eminent living surgeons: Dr. Richard B. Cattell, director of the Lahey Clinic at Boston, Massachusetts, will speak on malignancies of the stomach and large bowel.

Dr. I. S. Ravdin, the John Rea Barton Professor of Surgery at the University of Pennsylvania, will discuss the diagnosis and treatment of malignancies in general. Dr. Ravdin, in addition to being the head of the Department of Surgery at the University of Pennsylvania, is at present chairman of the Board of Regents of the American College of Surgeons, and is a man of immense national and international reputation.

Dr. John C. Burch, Professor of Gynecology at Vanderbilt, will discuss malignancies of the uterus.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The eighteenth annual meeting of the New Orleans Graduate Medical Assembly will be held March 7 - 10, headquarters at the Municipal Auditorium.

Eighteen outstanding guest speakers will participate and their presentations will be of interest to both specialists and general practitioners.

The Assembly has planned another interesting postclinical tour to follow the 1955 meeting in New Orleans. On Saturday, March 12, a party composed of doctors and their families will leave New York for Europe via Pan American World Airways *President Special.* The itinerary includes France, Italy, Germany, Denmark, Sweden and England, and arrangements have been made for medical programs in these countries. The tour ends in England and the group will return to New York, sailing April 7 from Southampton on the S. S. *Liberte'*, or by Pan American World Airways.

Details of the New Orleans meeting and the postclinical tour are available at the office of the Assembly, Room 103, 1430 Tulane Avenue, New Orleans 12, Louisiana.

1955 MISSISSIPPI MARCH OF DIMES AGAINST POLIO

The polio attack rate in Mississippi last year according to provisional reports was about the same as the national average for the year 1954. Nationwide, the number of cases reported in 1954 was the third highest on record.

The highest polio epidemic year in Mississippi during recent times was in 1951, when 732 polio cases were reported. This was 81 per cent higher than the national average for that year. It is impossible to predict when and where polio epidemics will strike, which underlines the need for more effective control measures.

Evaluation of the Salk vaccine, administered to 440,000 U. S. children, in the largest medical experiment of its kind ever conducted, is now in progress. Announcement of the vaccine's effectiveness will be made in the spring of 1955.

During the field trials last spring about 3,700 children in the state of Mississippi were inoculated with the Salk vaccine.

It is hoped that Mississippi physicians will support the 1955 March of Dimes as enthusiastically as approximately 20,000 physicians throughout the United States cooperated in the 1954 vaccine field trials sponsored by the National Foundation for Infantile Paralysis.

This year the March of Dimes must do a bigger job than ever before. It must raise $64,000,000—because $9,000,000 are needed to purchase vaccine, $2,700,000 for scientific research, $2,900,000 for professional education, and at least $29,900,000 for patient aid, including hospitalization. The March of Dimes has expended $203,600,000 in patient aid since 1938.

For science and humanity, give generously to the 1955 March of Dimes in January. Let your patients and friends know that the March of Dimes fights wisely, economically and effectively against the polio threat.

G.P. N. C. PHYSICIAN SELECTED OF YEAR

Karl Busbee Pace, M.D., a Greenville, N. C., general practitioner, has been selected by the American Medical Association as the most typical family doctor in the nation. His selection was announced at the opening session of the AMA's clinical meeting in Miami, Florida. Choice of the general practitioner of the year is based on the physician's services to his community in health and civic affairs. Dr. Pace received a gold medal and a citation outlining his contributions. Nominations for the award are made by local medical societies to each state society, which, in turn, submits one name to the AMA Board of trustees. Dr. Pace is the eighth physician who has received the general practitioner award since the first was chosen in January, 1948.

ABSTRACT OF PEDIATRIC LITERATURE

HARVEY F. GARRISON, M.D.

A Fatal Case of Poliomyelitis in a Newborn Infant Delivered by Cesarean Section Following Maternal Death Due to Poliomyelitis. C. L. Swartz and E. F. Kercher. Pediatrics 14: 235-237 (Sept.) 1954 (Springfield, Ill.)

A living male infant was delivered by cesarean section within five minutes after maternal death from undiagnosed poliomyelitis. Gestation had lasted 34 weeks, and the mother's fulminating illness had had its onset 24 hours prior to admission to hospital. The baby showed signs of poliomyelitis at the age of 10 days; he died at 12 days. Type 1 (Brunhilde) strain of poliomyelitis virus was isolated from both the infant's and mother's spinal cord with the tissue culture technique. The disease processes seen at the autopsy in the baby seemed to be longer duration than found in examination of the mother's tissues. Although positive proof is not forthcoming, this case and four cases in the literature, in which poliomyelitis developed after delivery by section, point strongly to the occurrence of transplacental passage of the poliomyelitis virus. In the instances of delivery by section at the time of maternal death this may be an agonal phenomenon.

COMMENT:

This is one of the unusual cases that possibly one would not see in a lifetime. It would be hard to believe that this baby had polio before the mother was infected.

"ATLAS OF CONGENITAL CARDIAC DISEASE"

In response to numerous requests from physicians, students, scientific workers and libraries throughout the world, the American Heart Association has reprinted the "Atlas of Congenital Cardiac Disease," by Dr. Maude F. Abbott. This classic monograph, a critical analysis of 1000 cases of congenital cardiac anomalies, was first published by the Association in 1936. Long since out of print, it has now been reprinted in a limited edition of 1500 numbered copies exactly as it appeared originally.

The work of Dr. Maude Abbott, who died in 1940, served to bridge the gap between the previous unsystematic and largely descriptive knowledge of congenital cardiac defects and the present era of precise diagnosis and dramatic surgery. Her systematic study and classification opened the way for the practical developments of the past two decades.

CRUISE PLANNED

The American Medical Association has completed arrangements for an outstanding Bermuda-Nassau cruise for physicians and their wives following the AMA convention at Atlanta City, next June 6-10.

The party will sail from New York City at 7:00 p.m. on Friday, June 10, aboard the Ocean Monarch, the newest addition to the Furness Lines fleet. This palatial steamer was designed primarily for cruising and offers ample deck space, swimming pool, and beautiful public rooms. All staterooms on the Ocean Monarch are outside rooms.

The entire cruise is but eight days in duration and the Ocean Monarch on the return voyage docks in New York at 9:00 a.m. on Saturday, June 18.

SYMPOSIUM ON THERAPY

The Tennessee Academy of General Practice will sponsor a symposium on Therapy in General Practice Wednesday, January 12, at the Peabody Hotel in Memphis, Tennessee.

The Lederle Laboratories Division of the American Cyanamid Company is co-sponsor of the program which was arranged with the assistance of the University of Tennessee College of Medicine.

About 500 physicians are expected to attend.

Speakers will be: Dr. James G. Hughes, professor of pediatrics, U-T College of Medicine, "Management of Acute Nephritis in Children;" Dr. Max S. Sadove, professor of anesthesiology, University of Illinois, Chicago, Illinois, "Management of Pain;" Dr. Clifford Barborka, associate professor of medicine, School of Medicine, Northwestern University, Evanston, Illinois, "Gastrointestinal Disorders;" and Dr. O. W. Hyman, dean, College of Medicine, University of Tennessee, luncheon speaker.

Dr. George Geckeler, clinical professor of medicine, Hahnemann Medical College, Philadelphia, Pennsylvania, "Cardiac Auscultation;" Dr. Ray O. Noojin, professor and chairman, Department of Dermatology and Syphilology, Medical College of Alabama, Birmingham, Alabama, "Malignant and Pre-malignant Lesions of the Skin;" and Robert B. Greenblatt, professor of endocrinology, Medical College of Georgia, Augusta, Georgia, and William E. Barfield, assistant professor of endocrinology, Medical College of Georgia, Augusta, Georgia, both will speak on "Management of the Menopause."

AMITE-WILKINSON

The Amite-Wilkinson Medical Society held its usual quarterly meeting at the Field Memorial Community Hospital at Centerville, December 17 at 7 pm. A case report was rendered by Dr. Lewis Chatham of Liberty, on diagnosis and treatment of ulcer-glandular tularemia.

The annual business meeting held and the following officers elected:

President—Dr. R. J. Field, Centerville
President-elect—Dr. Edsil Stewart, Gloster
Sec'y and Treas.—Dr. S. E. Field, Centerville
Delegate and Alternate to MSMA—Dr. R. J. Field and Dr. Edsil Stewart.
Reporter—Dr. D. H. Thornhill, Crosby.

An excellent Christmas dinner was served the doctors and their wives by Miss Mary B. Bowles and her nursing staff.

NORTHEAST MEETS

The Northeast Mississippi Medical Society held its last quarterly session on December 14 at Tupelo. The scientific program was good and the dinner and entertainment were fine. P. K. Thomas and TKE Drug Company always give a fine banquet. Mr. Clayton Rand of Gulfport was a mighty effective after dinner speaker.

Dr. W. W. Strange of Booneville presided over the scientific session as president. He will be succeeded by Dr. Harry Cosby of Iuka as incoming president.

CANCER RESEARCH

About half of those who develop cancer today can be saved only with more knowledge. Seeking this knowledge is the dramatic research quest into how cancer starts, how it can be halted or even reversed.

Probing the innermost secrets of life's processes —from the minute genes of the prolific fruit fly to the first cell of human embryos—thousands of dedicated men of science are engaged in an electricfying race against time. In the balance hang the lives of 150,000 Americans—those who die every year of cancers that cannot be cured without further knowledge from the laboratories.

PUBLIC RELATION TIP

A new Public Relations Manual for county medical Public Relations Committee chairmen, the first textbook of its kind ever published, will be available in the immediate future.

The Manual explains how to organize for Public Relations action, outlining dozens of Public Relations projects which local medical societies can conduct to win the respect and confidence of the community. The indexed manual is a complete Public Relations primer, reporting on what many societies have done and how they did it.

The Public Relations Manual will be available to county medical society officials through the headquarters office of the State Medical Society. Spelled out in the manual is the organization and promotion of: emergency call systems, mediation committees, press relations, speakers bureau, society member indoctrination, provision of medical care for all, public service activities and citizenship activities.

Voluntary hospital insurance is having its day and so far it seems to have been beneficial to all concerned. More than a hundred million people in our nation have some form of health insurance.

Fifty Year Club Biographica

WADE HAMPTON SUTHERLAND

Wade Hampton Sutherland, son of W. W. and Ann Nelson Sutherland, was born February 18, 1876 in Lee County near Verona, Mississippi. His father was a physician.

He received his early education in the common schools of Prentiss County and taught school for eight years prior to entering medical school.

In 1904, he received his medical degree from the University of Tennessee. Following graduation, he began the practice of medicine at Kirksville and seventeen months following, he moved to Wheeler. In 1910, Doctor Sutherland located at Booneville and has practiced there since that time.

Following graduation, he did postgraduate work in Memphis, and in New Orleans Poly Clinics and at the Chicago Ear, Eye, Nose and Throat Hospital and also at Mayo Clinic. In addition to short courses in this country, he studied at the Royal Infirmary, Edinburgh, Scotland.

In 1916, Doctor Sutherland opened in Booneville a 25 bed hospital which grew to a 52 bed hospital and later became the Northeast Mississippi Hospital.

He is a charter member of the Prentiss County Medical Society; has served as chairman of the Surgical Section of the Mississippi State Medical Association twice; and served as chairman of the Northeast Mississippi Thirteen Counties Association. He is fellow, Southeastern Surgical Congress; fellow, American College of Surgeons, fellow, International College of Surgeons, and fellow, American College of Diseases of the Chest.

Doctor Sutherland is a 32nd degree Mason, Scottish Rite and a 14th degree Mason, York Rite, and a Shriner. He is a member of the Baptist Church.

For many years, Doctor Sutherland has contributed to the welfare of mankind in his outstanding practice of medicine. On June 13, 1954, he was made a lifetime member of the Fifty-Year Club of the State Medical Association. Honored by the designation of June 13 as "Dr. Sutherland Day" the Northeast Mississippi Hospital, the Medical Staff of the Hospital, and the Ladies Hospital League arranged for a special program "honoring a man who is undoubtedly the father of hospitalization in this county."

JAMES HERBERT WINDHAM

James Herbert Windham, son of Richard Whitlow and Malinda J. Aldridge Windham, was born at Walton (now Etta), Mississippi on February 28, 1875.

On April 29, 1904, he received his medical degree from the University of Tennessee. Following graduation, Doctor Windham located at Etta. In 1910, he moved to Ecru.

Since 1912, he has served as local surgeon for the GM & O railroad. He served as county health officer from 1912 until 1920 and was a member of the State Board of Health 1920-1924. Doctor Windham served as a trustee of the Building Commission when the first unit of the Sanatorium was built. He served as a member of the Eleemosynary Board and also as a colonel on the Governor's Staff from 1940 until 1944.

In 1925, Doctor Windham served as President of the Northeast Mississippi Medical Society. He was charter member and President of the Bank of Ecru and now serves as director and advisor of the Bank of Tupelo.

On December 5, 1954, Doctor Windham was honored with lifetime membership in the Fifty-Year Club of the State Medical Association. A special program honoring him was held at the Methodist Church in Ecru and attended by many friends and associates.

In the practice of medicine, Doctor Windham has always upheld the high tradition of medical practice—placing service to all above any thought of personal gain. He is loved by all who know him and continues to serve his fellowman faithfully and well from day to day as he has done for many years.

The Mid-South Postgraduate Medical Assembly meets in Memphis, Tenn., February 14-17, 1955.

The wise man draws more advantage from his enemies, than the fool from his friends—Benjamin Franklin.

Deaths

DR. JOHN L. MELVIN

Funeral services for Dr. John Leonard Melvin, physician in Shuqualak for 37 years, were held at 11:00 Monday from the residence with the Rev. Peter De Ruiter officiating. He was assisted by the Rev. C. B. Burt, of Ripley, the Rev. Hemphill, and the Rev. Guerry. Burial was at 2:30 p.m. at Erata, Miss., under the direction of Dare Funeral Home.

Dr. Melvin, 81, passed away at his home Saturday after a long illness.

Born in Jones County on June 19, 1873, he was the son of the late G. W. Melvin, Confederate veteran, and the late Mrs. Melvin.

After receiving a degree in medicine from the University of Tennessee Dr. Melvin practiced for 53 years. He was a member of the American Medical Association, Miss. State Medical Society, and Northeast 13 Counties Medical Society.

Dr. Melvin was a member of the Shuqualak Presbyterian church and a Mason.

In 1937 he married the former Eva Sue Bennett who survives him.

He also leaves a son, Dr. D. G. Melvin, of Graystone Park, N. J., a daughter, Mrs. Roy J. Cavert, of Merced, Calif.; 4 sisters, Mrs. O. Cooper, of Pascagoula, Mrs. Margaret McGifvroy, of El Dorado, Ark., Mrs. C. Johnson, and Mrs. O. Strickland, both of Jones County; 3 brothers, Bert Melvin, Grover Melvin, and Patrick Melvin, all of Jones County; and 2 granddaughters, Margaret Melvin and Mary Melvin, of Graystone Park, N. J. There are also a number of nieces and nephews.

Active pallbearers were John Ledbetter, Albert Hale, Auburn Bethany, Armon Sciples, Kellis Bell, Gene Robertson, Oscar Person, George Anderson, Campbell Sparkman and Connie Lagrone.

DR. E. J. MATHIS

Dr. Edward Jones Mathis, 88-year-old south Mississippi physician for many years, died at a hospital in Hattiesburg October 27.

Dr. Mathis received his medical degree from Mobile, Ala., Medical College in 1890 and located in Quitman where he practiced 16 years. Later, he moved to Beaumont. He also practiced in Gulfport and Enterprise.

He was a member of the South Mississippi Medical Society, the Mississippi Medical Association and the Fifty-Year Club of the state group.

Survivors include his widow, four daughters and two sons.

"A friend is a man who knows all about you and loves you still."

MEDICAL OFFICERS needed at Redstone Arsenal, Huntsville, Alabama, GS-12 and GS-13, $7040 and $8360 per annum respectively. Industrial Medical Program includes the operation of a clinic and emergency stations. Submit Standard form 57, Application for Federal Employment, to Civilian Personnel Officer, Redstone Arsenal, Huntsville, Alabama, Attention: Miss Dorothy Hodges.

Woman's Auxiliary

NORTHEAST AUXILIARY ENJOYS CHRISTMAS MEETING

Members of the Northeast Mississippi Auxiliary gathered for the annual December meeting at the Presbyterian church in Tupelo, the Tupelo doctors' wives serving as hostesses. A festive Christmas decor of red candles, Yuletide greens, and sparkling silver appointments provided a delightful setting for the collation of holiday dainties served the guests.

Mrs. M. M. Snelling, president of the state organization, brought greetings and an inspirational talk on the work of the Auxiliary. She recounted objectives set forth at the national conference of presidents and presidents-elect in Chicago which she attended in November, and urged doctors' wives to subscribe to and to send subscriptions of *Today's Health* to beauty shops, schools, mothers of growing children, and others.

At the business session Mrs. W. H. Anderson was elected president, Mrs. S. Jay McDuffie of Nettleton, first vice-president, Mrs. J. Rice Williams of Houston, second vice-president, Mrs. R. C. Cantrell of Plantersville, third vice-president, and Mrs. George S. Barnes of Columbus, secretary-treasurer.

PRESIDENT ANNOUNCES EXECUTIVE BOARD MEETING

Mrs. Snelling, state president announces that the members of the executive board for the Auxiliary to the Mississippi State Medical Association will meet on January 19 at the Heidelberg Hotel in Jackson at ten-thirty in the morning. This group will gather in the Silver Room, while the MSMA executive officers and committee chairmen meet at the same time in the Victory Room. A luncheon has been planned also to include wives of physicians who are attending the meeting.

All officers and councilors are urged to be present.

MORE READERS FOR "TODAY'S HEALTH"

Hats off to state auxiliaries coming up with fresh ideas for bringing *Today's Health* magazine to more and more readers. The Arkansas Medical Society has placed copies of the magazine in 100 bookmobiles throughout the state. Also prompted by its auxiliary, the Nevada State Medical Association has ordered subscriptions for every secondary school, college and university library in the state.

EXHIBITORS-MID-SOUTH POSTGRADUATE MEDICAL ASSEMBLY - Feb. 8-11, 1955

AS OF December 3, 1954

Abbott Laboratories, North Chicago, Ill.
A. S. Aloe Company, St. Louis, Mo.
Ames Company, Inc., Elkhart, Indiana
Ayerst Laboratories, New York, N. Y.
Baby Development Clinic, Chicago, Ill.
Bilhuber-Knoll Corp., Orange, New Jersey
Brayten Pharmaceutical Co., Chattanooga, Tenn.
Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoc, New York.
Central Surgical Company, Inc., Little Rock, Ark.
Ciba Pharmaceutical Products, Inc., Summit, New Jersey.
Delta Surgical, Inc., Memphis, Tenn.
The Dick X-Ray Company, Memphis, Tenn.
Eaton Laboratories, Norwich, New York.
Ethicon Incorporated, New Brunswick, New Jersey.
H. G. Fischer & Company, Franklin Park, Ill.
Flint, Eaton & Company, Decatur, Ill.
General Electric Company, X-Ray Dept., Memphis, Tenn.
Gerber Products Company, Fremont, Michigan.
H. J. Heinz Company, Pittsburgh, Pa.
Hoffmann-LaRoche, Inc., Nutley, New Jersey.
Kay Surgical, Inc., Memphis, Tenn.
Lederle Laboratories Division, American Cyanamid Company, Pearl Rover, N. Y.
Eli Lilly and Company, Indianapolis, Ind.
J. B. Lippincott Company, Philadelphia, Pa.
M. & R. Laboratories, Columbus, Ohio.
J. A. Majors Company, New Orleans, La.
Mead Johnson & Company, Evansville, Indiana.
Medco Products Company, Tulsa, Oklahoma.
Memphis Limb & Brace Company, Memphis, Tenn.
The Mennen Company, Morristown, New Jersey.
The Wm. S. Merrell Company, Cincinnati, Ohio.
Miller Surgical Company, Chicago, Ill.
The National Cash Register Co., Memphis, Tenn.
Nepera Chemical Co. Inc., Yonkers, N. Y.
Ortho Pharmaceutical Corporation, Raritan, New Jersey.
Parke, Davis & Company, Detroit, Michigan.
Pet Milk Company, St. Louis, Mo.
Chas. Pfizer & Company, Brooklyn, New York.
Wm. P. Poythress & Company, Inc., Richmond, Virginia.
R. J. Reynolds Tobacco Co., Winston-Salem, N. C.
A. H. Robins Company, Inc., Richmond, Virginia.
J. B. Roerig and Company, Chicago, Illinois.
Sandoz Pharmaceuticals, New York, N. Y.
Schering Corporation, Bloomfield, New Jersey.
G. D. Searle & Company, Chicago, Illinois.
Sharp & Dohme, Division of Merck & Co., Inc., Philadelphia, Pa.
Southern Surgical Supply Co., Memphis, Tenn.
E. R. Squibb & Sons, New York, N. Y.
Standard Oxygen Service, Memphis, Tenn.
Wm. T. Stover Co. Inc., Little Rock, Ark.
The Stuart Company, Chicago, Illinois.
Swift & Company, Canned Foods Dept., Chicago, Illinois.
Tablerock Laboratories, Greenville, South Carolina.
The Upjohn Company, Kalamazoo, Michigan.
U. S. Vitamin Corporation, New York, N. Y.
Varick Pharmacal Company, Inc., New York, N. Y.
Al Vogel X-Ray Company, Memphis, Tenn.
The William A. Webster Company, Memphis, Tenn.
White Laboratories, Inc., Kenilworth, New Jersey.
Winthrop-Stearns Inc., New York, N. Y.

Now for a fifty-year club for the nurses. We believe the time is already past due. Mississippi has some very fine nurses who deserve honor and praise.

NURSE RECRUITMENT EXHIBIT

"Why study nursing?"—is neatly answered in an attractive new nurse recruitment exhibit which the Woman's Auxiliary to the AMA has developed for showing at various local public gatherings. The advantages of nursing as a career—security, satisfaction, success, prestige, professional recognition, pride—are outlined as well as the specific training and entrance requirements for both the professional and practical nursing courses. This exhibit is available for showings at the county and state fairs, 4-H Club, PTA and similar meetings from AMA's Bureau of Exhibits.

ANNOUNCEMENT

H. K. Stauss, M.D., announces his return from military service and the reopening of offices at 319 Plaza Building, Jackson, Mississippi. Practice limited to Thoracic Surgery and Broncho-Esophagology.

The Surgical Clinic, 710 North State Street, Jackson 2, Mississippi, announces the association of Carl D. Brannan, M.D., W. Coupery Shands, M.D., J. Harvey Johnston, Jr., M.D., and George E. Twente, M.D.

"The wisdom of the wise is an uncommon degree of common sense."

Problems and Opportunities in the Field of Plastic Surgery

WM. MILTON ADAMS, M.D.
Memphis, Tennessee

This is the twenty-third annual meeting of our society. In looking backward over the years since its organization in 1931, we may well be proud of our progress. From the small group who were its founders in New York, the American Society of Plastic and Reconstructive Surgery has grown into the largest association of plastic surgeons in the world.

While we are proud of our progress over the past twenty-three years, we are by no means content. There are problems to be solved as well as opportunities to be explored. Some of these problems and opportunities are discussed herein. They have been matters of serious concern in the minds of many of us, and each presents a challenge which can be met only by our concerted efforts over an indefinite period of time.

Comparatively few individuals who need plastic surgery find their way to our doors. To be convinced of this fact, one has only to walk a block down a busy city street; probably one of every five persons one meets will have some defect which could be improved or completely corrected by plastic surgery. That this vast number of people are not seeking our services is explained by the fact that they have little or no conception of the possibilities of plastic surgery. In the past we have been restrained from attempts to enlighten them by tradition and custom. But times are changing. The public health doctors took the lead in inaugurating the change. The medical profession had the means of prevention and cure of such diseases as typhoid fever, smallpox, diphtheria and syphilis for years before the public health doctors realized the opportunities offered by publicity campaigns to bring them to the attention of the people. As a consequence of their initiative and effort, these and other diseases have almost disappeared. Following in their footsteps, a number of health agencies today regularly conduct publicity campaigns to inform the people regarding specific diseases. The cancer campaign is an outstanding example; because of the widespread educational program sponsored by the American Cancer Society, people everywhere have become cancer-conscious and yearly contribute large sums of money to research in this field. Newspapers, magazines, the radio and television are rendering an inestimable public service through their cooperation in these activities. The response to this publicity has proved beyond question that the people are eager for information on all health matters.

There is no reason why we should not employ these same methods in an educational program of our own. We have already engaged a full-time director of public relations and thus far have been able to secure the cooperation of several popular magazines in publishing articles on plastic surgery. Probably of more importance, we have been able to prevent the spread of misinformation in some quarters. These are definite steps in the right direction but they are only a beginning. We should institute and vigorously pursue broad measures to enlighten the entire public all those who live by the side of the road as well as the select few—regarding the type of service we provide in plastic and reconstructive surgery.

The public should also be better informed regarding the functions of the American boards, that they were organized primarily for the protection of the patient and provide the safest yardstick by which the competence of any specialist in the field of medicine and surgery can be judged. This is particularly true of the American Board of Plastic Surgery, since the minimal requirements for certification are among the most rigid of the various boards.

To a material degree, our success in any effort to bring our services to those in need is complicated by economic problems. Because of the high cost of hospitalization, few people have sufficient means to pay all the expense of an operation. In other branches of surgery this difficulty has been largely overcome by health insurance. In plastic surgery, however, a different state of affairs has prevailed. Most insurance companies, taking advantage of the general but erroneous idea that all plastic surgery is cosmetic surgery, refuse to cover any type of reconstructive procedure, regardless of the circumstances. They overlook

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*Presidential Address, delivered at the annual meeting of the American Society of Plastic and Reconstructive Surgery, Hollywood Beach, Florida, October 28, 1954. Reproduced by permission of the Williams and Wilkins Company, publishers of *Plastic and Reconstructive Surgery Journal.*

entirely the fact that so-called cosmetic surgery is necessary surgery. We see many individuals who are so disturbed mentally by a disfigurement that they cannot work. If the individual is the head of a family, the entire family relationship suffers, going from bad to worse as the psychic disturbance increases because of economic difficulties and the economic difficulties increase because of the psychic disorder. For such people plastic surgery is essential. Psychiatrists would unquestionably substantiate this viewpoint. Not all persons who have a defect develop a psychic disturbance; nevertheless, it is just as natural that any one with a structural defect should wish to have it corrected as it is that they should seek correction of an abnormally functioning gallbladder or other organ of the body. The very fact that such a person seeks correction of a defect indicates a high order of intelligence and a sane and realistic attitude toward his abnormal anatomy. Any individual, therefore, who is willing to undergo an operation to have it corrected is entitled to the benefits of insurance. A few of the better insurance companies take this attitude. The companies which refuse to do so are practicing an unjust discrimination and we should make every effort to remedy the situation.

One of the major problems with which we must deal arises from the current state of affairs in surgery as a whole. A radical change has taken place within recent years. The need for many types of surgical procedures has been materially reduced, largely through the use of antibiotic drugs. As a consequence of this evolutionary process, those whose practices are being reduced are seeking to increase their work by expansion into other specialties. One of the specialities being encroached upon is plastic surgery.

The trend toward the practice of plastic surgery by men who have previously confined their work to the other fields began during the war. In the beginning of the war, the armed services medical corps thought that initial reparative surgery could be performed by the general surgeons. It was soon realized, however, that the general surgeons could do better work if they had special instruction in plastic surgical procedures. Plastic surgeons volunteered to give the general surgeons concentrated courses and training centers were established for this purpose. These courses, lasting six weeks, accomplished much good, but they were only an emergency measure and were not intended to establish a precedent. We all know that a six weeks' course does not qualify one for the practice of plastic surgery. Any surgeon in another specialty, therefore, who wishes to do reconstructive work should drop his previous practice entirely and take the minimum formal training prescribed by the American Board of Plastic Surgery.

Some men in other fields have the idea that plastic surgeons are reluctant to share their knowledge and experience. Nothing could be farther from the truth. One of the faults of our medical school system is the almost complete lack of instruction in plastic surgery. With few exceptions, the plastic surgeon serves only in the capacity of consultant. Since all surgery embodies some of the principles of plastic surgery, more attention should be directed toward the teaching of these principles in our medical schools and training centers. Every surgeon will then be better prepared to perform emergency and simple plastic procedures encountered in everyday practice. Even in the suture of minor lacerations, one can do better work if he is familiar with the principles of plastic surgery.

Basically, there is little similarity between plastic surgery and other types. On the whole, other surgery is destructive, that is, it consists of cutting away, whereas plastic surgery is reparative. Thus far, teaching in our schools has been directed largely along the lines of general surgery. As new therapeutic measures are developed in the medical field, however, we may anticipate that surgery will be less and less destructive and more and more constructive. For this reason, every large medical center in the country should have a department of plastic surgery functioning on a level with other departments for the instruction of students, interns and residents in fundamental reconstructive problems. In a few medical centers plastic surgery has been given its due emphasis, and in these the departments have promptly grown into one of the largest of the surgical services. We should never lose sight of one fact, however: It is of the utmost importance that the standards for a well-trained surgeon be maintained upon the highest plane, and every instructor in a medical center must be able, by his teaching and examples of his work, to demonstrate that there can be no compromise with mediocrity in plastic surgery, and that only by complete formal training as determined by the American Board of Plastic Surgery can acceptable results according to present standards be expected.

We need not fear that we shall be deprived of our practice through such a teaching program. If all the persons who need rhinoplasty should come to us today, we would be unable to take care of them. As the public learns more about our work and seeks our services in larger numbers, we shall continue to find an abundant demand for plastic surgery of the better type. Many special problems will present themselves, requiring special creative talent and skill.

In insisting upon the competence of others who perform surgery of a plastic nature, we must be sure that we ourselves are competent. In this swiftly moving era, it is necessary to keep alert or we shall find our work out of date and our results far below the average level. One cannot rest upon laurels of ten or twenty years ago, for the reason that results which were considered excellent at that time may fall far short of our current conception. Indeed, many of the procedures which were then popular are obsolete today.

Competence is acquired by the intelligent application of collective experience, beginning with our own. A good surgeon should be his own severest critic. He should examine his results, and if they are less than perfect, should try to find the cause and remove it. He should also contribute to general knowledge by reporting his work, even though it may reflect some imperfections. It has been the custom to write about our new technics and good results, without mentioning our inferior technics or dwelling upon unsatisfactory results. By pointing out our mistakes, however, we can render a distinct service; it is often as necessary to know what not to do as to know what to do. This is one aspect of our teaching which has been neglected.

We cannot sustain a claim to competence without a knowledge of what other surgeons in our field are doing. Reading journals and attendance at society meetings is of course essential; a great deal can be gained through these media. For the best training, however, the plastic surgeon should visit other clinics at every opportunity. In this manner, one may learn a variety of methods of performing different operations and discover many refinements of technic; every plastic surgeon is particularly adept in performing some type of operation or has developed some "trick of the trade", so to speak. It is impossible to acquire a comprehensive knowledge in one training center, however excellent it may be. One should make at least two or three visits to other clinics every year. This applies to all plastic surgeons, regardless of their experience, and especially to the younger men.

Procedures and technics in plastic surgery have reached a high degree of development. Although some improvements will continue to be made in these respects, progress in the future will depend chiefly upon research. The possibilities in this field are unlimited. It is reasonable to believe that in the near future we shall be able to transplant living skin and other tissues or organs from one individual to another and have banks for these tissues similar to our present blood banks.

Since plastic surgery is a comparatively new development, new conditions are being recognized and new procedures devised almost constantly. At present, considerable confusion exists as to the nomenclature for these innovations. Surgeons in different localities use different terms; a single operation may be called by half a dozen names. In order to compare our statistics, particularly our results, we should have a definite, standardized nomenclature. Otherwise, they can be of little or no real value. Such a nomenclature should be standardized on both a national and an international basis. The problem could easily be worked out by a committee of plastic surgeons in cooperation with the nomenclature editor and committee of the American Medical Association.

There are other phases of activity in which plastic surgeons do not receive proper recognition and are consequently limited in the service they could render. Plastic surgery comprises a large portion of the work of many of the welfare agencies, such as the Crippled Children's Service and the Vocational Rehabilitation Association, and we have always given our services willingly and generously to these groups. They recognize the necessity for our services, yet, with few exceptions, we have not been invited to join their advisory councils and help formulate their policies. In view of the time and effort given these agencies, we should not hesitate to let it be known to those in authority in our local and state medical societies that we should be represented in the agencies' state policy making councils. Such an arrangement would be to their advantage in that their services could be extended without increased cost. Once the plastic surgeons were represented in the advisory councils of the states, they might organize a national council with the view of more efficient and more extensive service throughout the country. Much could be accomplished by the closer cooperation between the lay members of these agencies and the plastic surgeons.

The means of solving these problems and turning our opportunities into realities lies in our membership. Although we have the largest society of plastic surgeons in the world, our membership is small by comparison with that of other medical organizations. There is strength in numbers, and the larger our membership the more rapid will be our progress. We should therefore invite into our group every reputable plastic surgeon who is a member of the American Board. We need them and they need us. It is gratifying to know that at this meeting—men have been admitted as regular members—as candidates. We extend to them a cordial welcome and invite them to take an active part in our projects.

We are especially glad to have the young men. One of the reasons for the remarkable growth of our society lies in the fact that we always recognized the advantage of having younger men as members. They bring the enthusiasm and ambition of youth and lend fresh impetus to our undertakings.

This is not a fraternal society; it is a society of service. Our objectives are not selfish. We are interested in the betterment of plastic surgery not merely because it is our profession, but because it has promising future of service. That promise can best be fulfilled by maintaining the highest standard of practice and broadening the scope of our influence in every field wherein our service may be effective.

The Present Status of Coronary Heart Disease

ARTHUR C. GUYTON, M.D.
University of Mississippi

In 1850 coronary disease was relatively unimportant because few individuals lived long enough to develop this common cardiac disease. Today, one hundred years later, 52 per cent of all deaths are caused by cardiovascular disease, most of these resulting from coronary insufficiency. We all know the cause of this amazing increase in cardiac disease—medical advances against other diseases have been extremely rapid, while the treatment of coronary heart disease has not advanced greatly above the symptomatic therapy used in the Middle Ages so that now our aged population is becoming a mass of heart ailments.

Many doctors despair of ever being able to combat arteriosclerotic heart disease, but recent research work is rapidly changing this outlook for the future. For instance, in some lower animals massive therapy with estrogens not only prevents arteriosclerotic vascular disease but actually diminishes the degree of atherosclerosis which has already developed. Experiments are now being conducted in human beings with early myocardial disease to determine whether or not this therapy might be of clinical value.

Another statistical study has shown that Italians have much less heart disease before the age of 65 than do Americans, and they also have a considerably different diet from that of Americans. For these reasons, special research studies are being conducted now to determine whether the relative lack of heart disease in Italians is due to their diet or whether it is due to their genetic makeup.

Only in the last ten years much has been learned about the chemistry of the arterial atherosclerotic lipoid deposits which initiate the arteriosclerotic process, and the relationship between the cholesterol and other lipids in the body fluids to the development of atherosclerosis is now being studied by a great host of chemists. Also, much is being learned about the effects of one's genetic makeup and of hormonal factors on these chemical mechanisms.

Though research developments have not yet produced a satisfactory treatment for coronary disease, there are reasons to believe that some method for inhibiting atherosclerosis may become available in the very near future. Therefore, the present status of research work in coronary heart disease is that of one of the most intensive and most important searches ever undertaken—a search which is beginning to issue forth a few uncertain leads and which when completed will bear results of transcendent importance to the human race.

Indications of Cesarean Section

J. P. FATHERREE, M.D.
Laurel, Miss.

THIS PREPONDERANCE of articles dealing with the indications for cesarean sections is a frank admission of our failure to solve the problem. Let us review some of the published statistics and study the incidence and indications.

O. Hunter Jones has presented 458 section cases and their indications.

		No.	*Pct.*
Previous Section		142	31
(83 of these were for disproportion)			
Cephalopelvic disproportion	104		
Breech disproportion	28	132	29
Toxemia		44	10
Placenta Previa		38	8
Premature separation		26	6
Prolonged labor)			
Inertia—(uterine dysfunction))		23	5
Cervical dystocia)			
Vaginal plastic		9	2
Fetal distress		7	1.5
Diabetes		7	1.5
Elderly primipara		4	.9
Cardiac disease		3	.7
Other causes		23	5.0
		458	

In 1953 Fletcher Smith and Frances MacDonald presented a study evaluating the current practice in the New York Lying-in Hospital. They reviewed 65,880 deliveries composed of 19,354 private patients and 46,526 ward patients. There were 2,415 sections done; 1,164 in private cases with a rate of 6 per cent and 1,251 ward patients with a rate of 2.7 per cent. Their over-all rate was 3.7 per cent. This study covered a three-year period.

Indications—	1933-49	*Pct.*	1950-52	*Pct.*
Contracted pelvis and mechanical dystocia				
Disproportion)			80	14.1
Contracted pelvis)	534	29.1		
Contracted pelvis)			23	4.1
Presentation	63	3.4	10	1.8
Dystocia due to tumor			9	1.6
Cervical dystocia			2	0.4
Other			19	3.4
TOTAL			143	25.2
Toxemia				
Eclampsia			3	0.5
Severe preeclampsia			11	1.9
Mild preeclampsia			2	0.4
Hypertensive disease			4	0.7
TOTAL	137	7.5	20	3.5
Previous cesarean section	362	19.7	150	26.5
Hemorrhage				
Placenta previa	132	7.2	35	6.2
Premature separation of placenta	107	5.8	33	5.8
Other	12	0.7	2	0.4
TOTAL			70	12.3

The picture in this study is typical with a few important items of interest. Elderly nulliparas and previous sections have been accepted readily as indications for sections. Disproportion is decreasing, suggesting a true decrease in incidence of contracted pelves. Prolonged labor has not appeared as an indication in five years. Heart disease and tuberculosis are disappearing as primary indication. Fifty-four per cent of the total diabetics were delivered by section.

A. Posner, Cohn and N. Posner have presented a review of 852 cases in a presentation entitled "Progressive Trends."

INCIDENCE OF CESAREAN SECTIONS

Hospital—	*Total Deliveries*	*No. of Sections*	*Pct.*
Bronx, 1932-1942	20,763	491	2.4
Millard Fillmore, 1945-1949	14,591	1,192	8.16
Pittsburgh, 1940-1949	10,499	118	1.09
Sloane, 1942-1947	17,226	1,000	5.80
New York Lying-in, 1932-1948	54,937	1,622	2.9
St. Vincent's, 1932-1946	15,429	536	3.47
Cincinnati General, 1940-1949		251	1.0
Jefferson Davis, 1941-1950	22,296	231	1.03
Norwegian, 1944-1950	10,173	400	3.93
Tennessee, 1948-1950	16,557	763	4.6
New Haven			5.9
Margaret Hague			2.6
Chicago Lying-in			5.5
Boston City			4.2
Kansas City			7.1
Johns Hopkins			5.5
Cleveland Maternity			6.1
Philadelphia Lying-in			5.8
Bronx, 1943-1951	24,440	852	3.5
a. 1943-1945	7,722	190	2.5
b. 1946-1948	9,027	271	3.0
c. 1949-1951	7,691	391	5.1
AVERAGE			4.23

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*Presented before the Section on Obstetrics and Gynecology at the eighty-sixth annual session of the Mississippi State Medical Association, Jackson, May 11-13, 1954.

Indications—	*No. of Cases*		*Pct.*	
1. Previous cesarean section	231		27.30	
2. Cephalopelvic disproportion	190		22.30	
A. Contracted pelvis		136		15.96
B. Normal pelvis		54		6.34
3. Hemorrhage	127		14.91	
A. Placenta previa		72		8.45
B. Abruptio placentae		55		6.46
4. Malpresentation	74		8.69	
A. Breech		49		5.75
B. Transverse		12		1.41
C. Face		8		0.94
D. Brow		5		0.59
5. Fetal distress	50		5.87	
6. Toxemia	36		4.23	
7. Obstructing tumor	27		3.17	
8. Previous vaginal operation	12		1.41	
9. Previous myomectomy	11		1.29	
10. Bad obstetrical history	6		0.70	
11. Diabetes mellitus	3		0.35	
12. Ruptured uterus	3		0.35	
13. Cervical dystocia	3		0.35	
14. Failed forceps	3		0.35	
15. Uterine inertia	1		0.12	
16. Old third-degree laceration	1		0.12	

COMBINED INDICATIONS IN 59 CASES

	Unengaged Vertex	*Breech*	*Tox.*	*Cont. Pelvis*	*Bad Obst. Hist.*
Elderly primigravida	17	9	6	6	3
Unengaged Vertex					2
Breech			2		
Toxemia		2		5	3
Contracted Pelvis			5		2
Sterility	1				1

MISCELLANEOUS INDICATIONS

	1943-45	1946-48	1949-51
1. Multiple condylomas of vulva with purulent vaginal discharge	1		
2. Fibroid uterus with chronic nephritis		1	
3. Previous operation for brain tumor		1	
4. Rheumatic heart disease, cardiac failure, and auricular fibrillation		1	
5. Uterus didelphus with pregnancy in one horn		1	
6. Syringomyelia		1	
7. Acute appendicitis at term		2	
8. Progressive laceration of cervix during labor		1	
9. Previous cerebrovascular accident		1	2
10. Progressive pyelonephritis			1
11. Rectal stricture			1
12. Rising Rh-negative antibody titer			1

COMPARISON OF INCIDENCE OF INDICATIONS WITH OTHER REPORTS

(Figures Given In Percentage)

	Previous Section	*Cephalo-Pel. Dis-Prop.*	*Placenta Previa*	*Abruptio Placentae*	*Tox.*
Rosensohn, Kushner, and Wahrsinger, 1932-1942	18.22	51.82	13.58	5.87	1.42
Williams and Hollenbeck, 1946-1949	30.01	28.30	12.43	4.97	6.7
Kistner, 1940-1949	22.71	51.00	6.77	5.58	3.19
Cody, 1941-1950	32.03	32.03	12.12	3.46	2.60
D'Esopo	12.1	53.9	7.6	1.8	4.1
Diddle, et al	28.0	17.6	6.2	4.9	10.2
Zarou, 1944-1951	31.25	28.25	14.25	2.00	4.75
Posner, Cohn, and Posner, 1943-1951	27.30	22.30	8.45	6.46	4.23
Mean Average	26.32	33.34	9.70	4.17	5.11

The foregoing tables are rather typical of what we find our country over. In the first series, compulsory sections made up 89.7 per cent. In the second series 91.5 per cent are in this category which includes: disproportion, previa, premature separation of placenta, abnormal presentation and previous section.

Over-all section rates vary in different centers from one per cent to approximately seven per cent. We must remember that the decrease in mortality and morbidity in both mother and baby make the choice of this procedure more available. Certainly this conclusion can be reversed if we spread indications widely and generally increase the section rate without regard to the indication for the procedure and the competency of the operator.

Maternal mortality from section per se is .1 per cent or less and fetal mortality ascribable to section is less than one per cent. Even this figure can be expected to decrease with improved technique and more knowledge of preoperative care, anesthesia, postoperative care and care of the newborn.

Let us hastily consider the individual indication for cesarean section:

Previous Section: The old axiom "once a section always a section" is back with most of us again. The reported incidence of uterine rupture complete or partial resulting from pregnancies subsequent to section is increasing. No doubt that many previous section cases can be delivered normally. This is particularly true in the multiparous who have had low cervical sections. They have proved their capacity adequate and the birth canal has been pioneered by a previous normal pregnancy. I can not pass this opportunity of reminding all of us of the strain on our coronaries resulting from the necessary close observation of these cases during labor. Operating rooms may suddenly become burdened with emergencies just when the previously sectioned case chooses to rupture. Every preparation must be made for the care of the possible ruptured uterus. Uneventful delivery from below will not remove the scars of battle from the coronaries of the obstetrician and certainly the majority of previous section cases will continue to be resectioned.

Fetopelvic Disproportion: There is no doubt that much can be done in this category to decrease and increase section rates. Some cases that we section could deliver below and we all have had deliveries below that we wish we had sectioned. Accurate pelvimetry will some day be a reality. At present certain techniques in the hands of certain individuals appear to be giving good results. Trial of labor is one of many procedures that means one thing here and another thing there. Until we agree on the criteria for an adequate trial of labor the term is of little value in general consideration.

Many of these disproportions that result from malpresentation may be corrected by forcep rotation, manual manipulation or version and extraction. Here we have to consider the ingenuity and physical assets of the accoucheur. One well-trained in the use of forceps will accomplish much without increasing mortality or morbidity. The individual with small hands and good training can by manipulation or version and extraction, accomplish more than those of us not physically equipped with appendages compatible with intrapelvic manipulations. A recent survey of 547 mid-forcep operations revealed a real mortality: 6.58 per cent corrected to 5.75 per cent. Of the 35 fetal deaths only 17 could be attributed to delivery trauma. Only 2 such deaths occurred in the last 4½ years while 329 of these mid-forcep deliveries occurred. Can this be improved technique or a better selection of the patients?

Breech Presentation: We must deal with this situation. To begin with, we are fenced in. There can be no trial of labor in the breech because of the danger of ruptured membranes and projection of the presenting part through the vagina. Here, pelvimetry, serious deliberation, intuition, an abundance of patience, good technique and fervent prayer are all we have. The increased section rate in primigravida breeches has given us a decrease in the fetal mortality. Along with this increase in rate has come an increase in the frequency of diagnosed uterine inertia.

Toxemia of Pregnancy: We all agree that the uncontrollable toxemia, preeclamptic or eclamptic, is still with us and must be dealt with. However, with more progress being made with the hypotensive drugs and induction techniques, the section rate in this category will continue to decline.

Placenta Previa and Abruptio Placenta: Under close observation with adequate typed and cross-matched blood available, marginal and low placental insertions may be treated conservatively. Induction may be used when necessary. The degree of blood loss may be the determining factor for section. Certainly no conservative measure will be advocated for a placenta previa centralis. Abruptio placenta with internal or external bleeding will require section depending first on amount of blood loss and secondly on the viability of baby. We should be most considerate in choosing surgery for dead babies unless we have positive maternal indications.

Prolonged Labor, Inertia (Uterine Dysfunction) and Cervical Dystocia: This group is of great importance to us. Where labor rooms are not available and where patients' families and in-laws are attending during labor, we have great difficulty evaluating situations on a real scientific basis. With a good mother and a good baby under ideal conditions we may go several hours with membranes ruptured before we consider section.

Inertia due to fatigue or other factors can frequently be cared for by sedation, rest and infusions followed by induction when necessary. Cervical dystocia may be without obvious cause. Previous surgery, conization and occasionally douching over long periods with potassium permanganate may scar a cervix to the extent that it can not dilate. Only close observation of progress during labor can reveal to us the time at which section is indicated.

Vaginal Plastics: These may create an indication. Here we must evaluate pelvic capacity and elasticity of a perineum. Deep episiotomy with the bladder kept empty may suffice. Certainly where surgery has been done for recto- or vesico-vaginal fistulae or vaginal atresia or third degree tear with resulting scarring, section is the procedure of choice.

Fetal Distress: This is included only for completeness. One can find many articles in the literature on this subject but recent conclusions question the results had from section. These cases can rarely reach surgery in time for salvage and the criteria for fetal distress is very questionable.

Diabetes Mellitus: Diabetes presents a medical complication that is frequently an indication for section. Early delivery at 36 to 38 weeks will save many of these babies by preventing subsequent hydrops, acidosis and toxemia as well as complications resulting from the high incidence of malpresentations. Section rates reach as high as

65 per cent in the literature with a conservative rate of 20 per cent. Again evaluation of the particular case with close observation of weight gain, fetal size, and state of diabetes is most important.

ELDERLY PRIMIGRAVIDA: Shall we say 35 or 37? The loss of tissue elasticity by aging is real. These patients are frequently elderly and primigravida not by choice. Early sterility, economics, war, *et cetera,* make these unfortunate. Sections are to be preferred to maternal and fetal mortality and morbidity and frequently subsequent reparative surgery.

CARDIAC DISEASE: Here we have another medical complication in the mother that may demand section. The cardiac status and particularly the cardiac reserve is best evaluated by the internist and his guidance will always be a comfort to us. Obviously the prenatal course is revealing in most of these cases. We must individualize these cases with care and the choice of anesthesia is most pertinent.

Other causes will make up the category to cover my sins of omission. They will include the occasional prolapsed cord, rising Rh titer, bad obstetrical history, previous myomectomy and others that make up approximately 5 per cent of our total section rate.

In this presentation we have considered indications for cesarean section. For brevity may we consider two situations that are not indications for cesarean section:

1. STERILIZATION: These are best done 24 to 48 hours after normal delivery. If other procedures are advocated the period of involution (6 weeks) should be allowed to pass.

2. DEAD BABIES: Only danger to mother should be the consideration in cases where we know the fetus is dead.

The incidence of cesarean sections can be reduced by uniform set policies formulated by hospital staffs themselves with ample consultation available and discussion of cesarean sections at special conferences. We must face the fact that there is a definite liberalization of indications throughout the country. This most probably is resulting from increased safety of the operation, a better understanding of the mechanism of labor and the recent statistical report on mortality and birth injuries.

In summary, we have considered the indications for cesarean section.

An attempt has been made to stand out the categories that may be considered as compulsory indications.

Consideration has been given the groups where variance in interpretation is confusing.

A need for universal criteria in certain procedures such as trial of labor has been mentioned.

There has been no consideration in this paper of choice of type cesarean section or anesthesia.

Some opinion has been expressed in regard to cases that should not be sectioned.

A means of reducing the incidence of cesarean section has been repeated.

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DISCUSSION

DR. LAURA O. WILLIAMS (Meridian) — Dr. Fatherree has covered the subject, "Indication for Cesarean Section," so thoroughly and rendered it so expertly, there is little that can be added. I thoroughly enjoyed it. However, at his suggestion, a few additional remarks will be made.

1. Diabetes mellitus as an indication for cesarean section.

2. The old axiom, "Once a section always a section."

Diabetes mellitus as an indication for cesarean section has increased in frequency in the last 20 years, and especially in the last decade with better knowledge of the pregnant diabetic and the increased number of pregnant diabetics. Obstetricians agree generally, that creditable results in the pregnant diabetic are dependent upon the early and specialized prenatal care. They must be carefully controlled and one must be aware of the frequency of complications with early recognition of such and combat them with intensive treatment. The early recognition that many diabetics, especially those with complications, require early termination of the pregnancy and termination without trauma to the fetus is more and more recognized for maternal interest and fetal salvage. This has increased the incidence of cesarean sections in the pregnant diabetic.

Given reported: 6 infant deaths from traumatic pelvic delivery in his series of 131 pregnancies. Pedowitz reported: a fetal loss of 75 per cent in breech deliveries, 5 infant deaths from traumatic pelvic vertex, and 6 intrapartum fetal deaths occurring during labor in his series of 156 viable pregnant diabetics. These statistics substantiate the need of nontraumatic delivery.

The termination of pregnancy in a diabetic, and a pre-clamptic, is similar. The mild cases of both are usually controlled medically and induced when the cervix is favorable. The class, C, D, E, or F (white) diabetic without obstetric complications is comparable to moderately, severe pre-clamptics and is best delivered about the 36th or 37th week. The diabetic who develops acute or increasing hydramnios toxemia, hypertension or albuminuria must be delivered as soon as the baby is viable. However, every effort is made to carry the pregnancy through the 35th week, because of the serious risk of the premature infant. With these facts in mind, early termination of the pregnant diabetic, nontraumatizing delivery, size of the baby, severity of the disease, with a cervix which is more likely unfavorable than favorable for induction of labor. It is easily understood that there is an increase in section rate in the pregnant diabetic.

Although it is the policy of the Department of Obstetrics of the Boston Lying-in Hospital, Joslin Clinic, and Johns Hopkins to deliver as many of these pregnant diabetics vaginally as possible, it is not surprising to find Nelson reporting 163 diabetic pregnancies, 128 being viable with 30 per cent repeat cesarean section and 40 per cent, primary sections. This section incidence of 70 per cent is greater than reported elsewhere and due to the number of primagravida in this group and their classification of diabetic patients. Long, from Johns Hopkins, reported 118 pregnancies in 96 proved diabetics (20 weeks or more gestation), with a section rate of 25 per cent from January 1, 1942 to June 30, 1948, and a 57 per cent rate from that date to December 31, 1952. This group did not include Priscilla White's group A. The New York Lying-in Hospital reported an incidence of 54 per cent of total diabetics, delivered by section in 1952.

With this increase in section rate, primarily for early delivery, 36 to 38 weeks, the fetal salvage has increased but let us not be misled into believing we obstetricians and our sections are wholly responsible. The section is merely part of our armamentarium and it alone would not show such improved fetal salvage without the internist with better diabetic management and understanding of the underlying pathology of the diabetic patient and the cooperation of a competent pediatrician.

2. It is regrettable that I cannot accept the old axiom, "Once a section always a section," for Dr. Fatherree is correct in reminding us of the strain on our coronaries, while we observe one of these previously sectioned cases to her termination per vagina, or change our course in the middle of the stream, so to speak, and resort to the abdominal route. But I can assure you gentlemen that the strain on my coronaries is far greater at this moment than in the labor room. Taking this attitude toward previous cesarean sectioned cases necessitates reference to the different types of cesarean sections—the classical, the low cervical, and the extraperitoneal cesarean section, and also to mention the previous indication. It is the low cervical and extraperitoneal section when done for some indication other than fetopelvic disproportion that I am prone to subject women to trials of labor, and even occasionally those who have previously been sectioned for fetopelvic disproportion. Since this is relative and almost never absolute, except in rarely seen extremely deformed, or extremely small pelves. Of course, previous morbidity, the general condition of the patient, size of the baby, outcome of the previous pregnancies, and hospital facilities, are the determining factors in subjecting women who have had previous cesarean sections to the test of labor in their subsequent parturition. It sufficeth to say that these cases require most careful observation and are terminated by low forceps when the cervix is fully dilated and the vertex readily accessible. Also these cases are terminated by abdominal route, should question arise as to the complication or should the progress of labor be unsatisfactory.

This feeling is shared by Dr. S. A. Cosgrove of the Margaret Hague Maternity Clinic and I quote, "Once a section always a section is not the practice in the Margaret Hague Maternity Clinic." He reported an incidence of 35 per cent of vaginal deliveries in women who had had previous sections. Wilson reported 578 repeat sections from New York Lying-in Hospital from 1932 to 1950 and of these 117 were given to another underlying or associate condition other than disproportion, which was good evidence that repeat cesarean section was not necessary if the first cesarean, a low flap, was done for non-recurring condition. In 1951, there was reported from this clinic, 42 per cent vaginal deliveries in previous cases. Smith and McDonald reported a 41 per cent incidence. They also stated, and I quote, "In spite of increased vaginal deliveries after previous cesareans in 1950-51, previous cesareans as an indication for cesarean is still on the increase."

Perhaps with time and experience, I shall have to yield to Dr. Fatherree's attitude.

Practical Points in Clinical Gonioscopy

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Reviewing in my mind the practicing ophthalmologists who dropped by either the school or the hospital where I was formerly associated, more of them seemed interested in gonioscopy, the visualization of the anterior chamber of the eye, than any other single subject.

The questions asked ran much as follows: "In terms of clinical practice, do you consider the data gained of practical importance? Which instruments do you use? Is it worth my getting one of these gadgets?"

I shall try briefly to go over some of the data which may help answer these questions.

Since gonioscopy has been so intimately related with glaucoma, and, since so much diversity of opinion exists about glaucoma, many of you may not agree with some of the conclusions that may be implied. To this I can only say that if more were known about glaucoma, there would not be this difference of opinion; gonioscopy is only one of the many aides that may help in understanding the pathologic physiology of this complex condition.

The history of gonioscopy dates back to around the turn of the century with the original work of Trantas[1], using the ophthalmoscope and digital pressure on the limbal area. Later came the contact lens (Salzmann[2]), the corneal biomicroscope with a contact prism (Koeppe[3]), and the major works of Troncoso[4],[5] who is remembered not only for developing a monocular hand gonioscope with self-contained illuminating system, but also for popularizing gonioscopy as a *practical procedure.*

The next major development was probably that of Goldman[6], who devised a lightweight contact lens with an attached mirror. A modification of this technique is the Allen contact prism (Allen and O'Brien[7]) which now enjoys wide use in this country. Since I personally use the Allen prism, and like it very much, I would like to describe in some detail its mechanics, my technique in its use, and why it has been of use to me.

First, total internal reflection from the oblique face of the prism replaces the mirror. A second feature is the spring device which is kept in place by the lids. Thus, a minimal but definite pressure exists holding the curved face of the prism against the cornea, and, at the same time allowing the prism to be rotated within the mounting, for views in the various quadrants.

The cornea is first anesthetized. A drop of 1 per cent methyl cellulose is placed on the concave face of the prism, thus giving optical continuity between the concave prism face and the cornea. The patient flexes his head forward about 45 degrees (this keeps the methyl cellulose from running out before you have the prism in place) and the prism is placed in the same manner as a contact lens. The patient's head is now put into position at the slit-lamp, where the illumination and observation systems are directed through the front surface of the prism toward the oblique prism face, so that both are mirrored into the chamber angle. The prism can be rotated without changing the position of the holding frame of the gonioscope, so that once you get the scope in, from the patient's point of view, no further change is made. Illuminating the lateral and medial quadrants can be accomplished by rotating the lighting source so that the slit is horizontal (not so easily done on some slit-lamps), or by shining the light directly through the oblique prism face from the side, or by illuminating the limbal area directly and viewing the angle by the thus-induced transillumination.

At this point, orientation plays a big part, since the apparent position of the field of view changes position as each quadrant is examined.

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I have found both from talking with other ophthalmologists, and from my own experience, that each of us has devised a simple method of our own to keep posted on landmarks. The easiest way for me is to think I am a very little man, sitting inside the eye; with my feet and body in the vitreous, chest in the lens, neck in the pupil (the iris forming a collar much like that of an English gentleman of a few centuries back), and head in the anterior chamber. Thus, on looking straight ahead from this position, whether it is actually up, down, or to one side, I will have over my head a huge dome, the cornea. The flat-furrowed floor is formed by the iris, and, where this dome reaches the floor, is the chamber angle. Since the landmarks that may be obliterated are at the iris extremity of the angle, I always start up on the cornea, and going posteriorly (which is also peripherally) the first line seen is white, the line of Schwalbe; this represents the breakup of Descemet's membrane. The next structure posteriorly is the trabeculum. Within this meshwork are the so-called "Spaces of Fontana"; now Schlem's canal can not be seen, unless it should have blood in it, but, it is right behind this trabecular meshwork. The trabeculum is usually described as "blue-gray" in color, but this is only in the white race, since in negroes we find it quite dark, particularly in the really black-skinned ones. Next posteriorly is another white line, the scleral spur. As the sclera gradually comes forward and medially, there is a spur to which is attached the ciliary body. Last seen, of course, is the most peripheral part of the anterior iris surface, arising from the ciliary body. From the iris surface may be seen two groups of small thread-like bands, traversing the angle. One group, the iris processes, end in the region of the scleral spur or adjacent trabeculum. The others, the iris trabeculae (lig. pectinatum irides), may extend as far as Schwalbe's line.

Thus, in order, the structures seen, going from the cornea toward the iris are:

1. Cornea
2. Schwalbe's line (end of Descemet's membrane)
3. Trabeculum (the filtration meshwork)
4. Scleral spur
5. Ciliary body
6. Peripheral iris

If all of these structures can be seen, the angle is declared open, or wide. There seems to be general agreement that in chronic "wide angle" glaucoma, the angle is gonioscopically open. In "narrow angle" glaucoma naturally less can be seen. The narrowing of the angle may take virtually any form up to total anterior peripheral synechia in all quadrants. In this extreme condition, one would follow the cornea peripherally, but would next see iris; in other words, iris would be plastered over the trabecular meshwork and Schwalbe's line so they would not be seen.

There have been suggested classifications, but I think the best thing is simply to describe what is in the angle, e.g., two small tenting anterior peripheral synechiae to Schwalbe's line, or to the trabeculum (or—what have you.)

Since gonioscopy does not help us too often in making the actual diagnosis of glaucoma, what will it do?

It can give us a more rational basis for using certain drugs, and can help avoid certain complications. Many antiglaucomatous drugs cause increased congestion. If the congestion is great enough, and, if the angle is narrow enough, a miotic may well cause mechanical block of the angle, thus causing a precipitous increase in pressure. Dunphy[8] advises the use of 1 per cent neosynephrine with miotics in the narrow angle. Di-isopropyl flourophosphate (DFP) is seemingly a more common offender in causing complications than other miotics. Leopold and McDonald[9] list this as one of the complications in their series. In the glaucoma clinic in New Orleans, La., the opinion prevailed that pilocarpine was still the preferable drug to use; DFP was used more in aphakic glaucoma than other types because of this difficulty in the narrow angle.

Another way that gonioscopy can be of help is in deciding what type of glaucoma surgery would be most beneficial. When seeing a patient for the first time in an acute congestive attack, one sometimes has difficulty deciding whether this is the first acute attack, or, simply the first in which the patient sought aid. If it were known that this was a recurrent attack, and if surgery was required, most of us would do a different procedure from that usually done in a first attack. If on gonioscopy (one often has to use glycerin to get the cornea clear enough for gonioscopy to be practical), one sees anterior peripheral synechiae, then this is obviously not the first episode of glaucoma.

One may consider cyclodialysis a procedure for either the wide, or the narrow angle. If being considered for the latter, it is good to know before starting in which quadrants are major synechiae, and just how much tearing with the spatula will be necessary. Chandler[10] advises that cyclodialysis should not be done without pperipheral iridectomy. Barkan[11] advocates the cyclodialysis for either wide-angle glaucoma or the narrow type with adhesions, suggesting that filling the anterior chamber full of air at the end of the procedure helps make a larger cleft that will stay open. Quite frankly, I have watched a number of clefts close when viewed with the gonioscope from month to month, and feel that the procedure should be combined with peripheral iridectomy and limited to cases where the angle is gonioscopically open.

Gonioscopy can be used to follow the progress of a cleft formed by goniopuncture, and should help in the long-term evaluation of this procedure (Scheie[12]).

In hydrophthalmos the iris tissue (actually mesodermal tissue) which did not degenerate completely, is seen gonioscopically to fill the angle, continuing around to the line of Schwalbe, thus obstructing the chamber angle. In many cases, particularly if seen in early years of life, there is present a Schlemm's canal which is quite capable of functioning, if the meshwork is opened. Barkan's[13] more recent report corroborates his earlier ones, and goniotomy certainly seems the procedure of choice, at least as the first operative try.

Barkan[14] reports a case of aniridia where on gonioscopic examination it seemed that rudimentary iris tissue existed between the ciliary body and Schwalbe's line—this was incised (goniotomy), with resulting normalization of ocular tension.

When preparing to do an external fistulizing procedure such as an iridenclesis, with or without sclerectomy, or a trephining, it is nice to know just how far the peripheral synechiae exist. I am sure we have all shared the experience of the iris not prolapsing satisfactorily simply because we had cut down a little too far posteriorly. As after cyclodialysis, the reason for a failure can often be seen.

In glaucoma capsulare the trabeculum is seen to contain the exfoliated particles of lens covering. In pigmentary glaucoma (Sugar and Barbour[15]) there is marked deposition of pigment from the degenerating pigment epithelium of the iris and ciliary body.

Since with the gonioscope one can see around some corners that cannot be seen by any other method, gonioscopy is of additional aid in the quest of foreign bodies. Moskowitz[16] reports two cases of uveitis seen in veterans who had been in land mine explosions years previously. In one case gonioscopy showed what seemed to be sand—the uveitis cleared only after surgical removal of same. In the second case, the offending material seemed to be glass—this patient responded to medical therapy. At the time of his report the foreign material still remained.

Lint (Vail[17]), rubber (Brockhurst[18]), and talc (Duszynski[19]) have recently been emphasized as intraocular contaminants. Where present in minimal amounts, gonioscopy could be of help in locating them. I well remember a case in New Orleans where, on a routine gonioscopic examination after iridectomy, there was seen what seemingly was a piece of plate off an instrument, nestling comfortably up against a ciliary process.

Gonioscopy is of value anytime there is needed additional visualization about the chamber angle. Its importance in new growths of the peripheral iris and limbal area, and in the examination relative to congenital anomalies in general, I shall only mention.

In conclusion, it is apparent that in spite of all of these phases we have mentioned so briefly, the major value in gonioscopy is in the evaluation of the glaucoma patient; which drugs not to use, which surgery may be fraught with unnecessary risks, and to help in telling us why all glaucoma surgery does not work.

Gonioscopy is easy to do, the procedure is not too time consuming, and the instrument is not expensive.

I want to express my appreciation to Mr. Lee Allen, under whom I was fortunate to have the opportunity to study, for kindly consenting to my photographing a number of his original drawings, and, to Abbott Laboratories, who consented to the reproduction of illustrative material on the Allen gonioscope, which appeared in *What's New* several years ago, thus making today's slides possible.

319 Plaza Building

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DISCUSSION

Dr. Thomas W. Wesson (Tupelo)—I think that we, the members of this section, owe our thanks to Dr. Johnson for his excellent presentation of a very timely topic. He has left little to be added in regard to his comments on the value of gonioscopy in glaucoma. I predict that within the next decade we will no more think of treating glaucoma cases without gonioscopic examination than we will think of treating them without a tonometer or a visual field chart. This is as it should be, because under the best of circumstances and using all the diagnostic help that we can get, our end results in glaucoma are still all too often lacking in what they should be as far as the retaining of useful vision is concerned.

My first attempts at gonioscopic examinations were with the Allen contact prism as described by Dr. Johnson. For a beginner, the technical difficulties were rather great. A fair view could be obtained above and below. However, as Dr. Johnson mentions, very little could be seen to either side due to the fact that my slit-lamp beam could not be rotated. It was hard to change the angle of the field of view.

My attention was then called to an article by Dr. Ernest Sheppard and associates of Washington, D. C., in the *American Journal of Ophthalmology* in February 1947. He advocated a simple technique loupe and illumination from an ophthalmoscope with the head but not the condensing lens removed.

At the present time I am using for my preliminary low power examination a Barkan surgical contact lens, a magnifocuser with a 4-inch focal distance and an ophthalmoscope head. The magnifocuser magnifies the image 3.5 times and the contact lens 1.7 times, making a total magnification of about 6 times. This examination requires less than 10 minutes and a fairly good idea of the angle can be obtained. The lens can be moved around easily, thus changing the angle of the field of view without effort. Of course if there is something that should be studied under higher power, the eye is then examined with the Allen prism under the slit-lamp.

My advice to anyone beginning gonioscopy is that they try this simple way on a few dozen eyes. The magnifocuser costs $12.50, the plastic Barkan lens $25.00, or the glass Barkan lens costs $45.00. Thus for $37.50 one can make a low-power examination. Of course I am familiar with Troncoso's objection to the low-power examination which he gives in his "Treatise on Gonioscopy." He states that five times magnification is too small. This is true in many instances, but the large field of view and the easy orientation make this method of much value to a beginner. After becoming familiar with the landmarks of the angle under low power, it is much easier to recognize them under the slit-lamp.

I note that in the April issue of the *Archives of Ophthalmology* there is a description of a new contact prism perfected by Mr. Lee Allen and Dr. Braley of the University of Iowa. Four quadrants of the chamber angle can be viewed almost simultaneously. It would seem to me that this is a big improvement and I certainly plan to get one of these as soon as they are available.

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The ultimate goal of cancer research is complete control of the various forms of the disease. Each year, slowly and painstakingly, new knowledge and improved techniques are discovered through work in biochemistry, metabolism, nutrition, cellular physiology, genetics, radiobiology, and other projects in specialized cancer research.

Nucleic acid antimetabolites that will cure animal cancer have been identified. Potential cell-destroying chemicals can now be tested directly against human cancer of the types available for study in laboratory animals. Thus, by study of actual human cancer rather than animal types, the exact materials required in the formation of nucleic acids in human neoplasms may be identified.

Massive Hemorrhage from Diverticulosis of the Colon Treated by Radical Subtotal Colectomy:

REPORT OF A CASE

D. T. BROCK, JR., M. D., AND JACK V. KING, M.D.

Jackson, Miss.

Diverticulitis and diverticulosis of the colon are common findings in the older age group, and much has been written about these two entities, particularly regarding the complications of diverticulitis. One complication which has received far less attention than others is that of massive hemorrhage. Though bleeding from diverticulitis and diverticulosis has been shown to occur rather frequently, massive hemorrhage has been fortunately uncommon, and hemorrhage requiring emergency surgery is even more uncommon.

Turnbull[1] reported 151 cases of diverticular disease of the colon, 12 of which massive bleeding. Five of this group required blood transfusion for shock, but none required surgery as an emergency. Rosser[2] reported that 12 of 40 patients with acute and chronic diverticulitis had noted rectal bleeding, and in four of these the bleeding was in large amounts. Hayes[3] reported two cases of massive melena secondary to diverticulitis. Stone[4] reported eight cases of massive bleeding from diverticulosis of the colon. In none of these was surgery necessary. Hoar and Bernhard[5] reported that the incidence of bleeding accompanying diverticulitis in a series of 111 cases was 42 cases (37 per cent). Of these 11 cases had gross bleeding and the others occult bleeding. There were 263 cases of diverticulosis with 39 cases (16 per cent) with bleeding. Of this number 18 cases had gross bleeding. Four of these cases required emergency surgery. A Mickulitz resection of the sigmoid was done in two cases, one of which died from aspiration pneumonia and the other died from cardiovascular complications. One was treated by transverse colostomy and subsequently died of bronchopneumonia. A resection of the sigmoid with end-to-end anastomosis was done in the other case with survival. In all these cases the diverticular disease was in the sigmoid colon. The authors concluded that early surgical intervention is advisable in massive hemorrhage.

Quinn and Ochsner[6] reported on 23 cases with massive bleeding, and 14 other cases admitted for less severe bleeding. In one case total colectomy was done with a fatal outcome. Allen[7] mentioned a case which had massive hemorrhage one year following removal of the sigmoid for diverticulitis requiring extirpation of the remaining colon, which contained numerous diverticula up to the ileocecal valve. Foster and Fisher[8] reported a case of massive hemorrhage secondary to diverticulitis of the sigmoid and diverticulosis of the entire colon in which a transverse colostomy was done as an emergency procedure. This resulted in cessation of the bleeding, and a left colectomy was done later with good results.

Cate[9] reported a case recently of a 40-year-old CF with massive hemorrhage from diverticulosis involving the entire colon in which a radical subtotal colectomy was done as an emergency with a successful outcome. The patient had been explored earlier with no definitive therapy, but the continued bleeding necessitated surgery eighteen hours later when the radical operation was performed. This was the first such case reported with a successful outcome in the literature.

The following case report represents another successful case of radical subtotal colectomy for massive bleeding from diverticulosis of the colon.

Mr. W. W. H., 64 year old WM, was admitted to St. Dominic's Hospital, Jackson, Miss., on 24 Jan., with a history of bloody diarrhea of eight days duration. On 15 Jan. he first passed a large bloody stool, and had continued to have four to six large bloody stools daily until admission. The stools were dark maroon in color. He had no previous symptoms of any kind related to the G.I. tract. When he continued to bleed he was referred to one of us (D.T.B.) on 25 Jan., by Dr. M. N. Williams. The review of systems was negative except for prostatism for the past year. Past and family history were non-contributory.

P. E. BP 145/90 p88 T99.4 R-24

The patient was an obese WM weighing about 250 pounds. EENT—neg: Thyroid—not palpable; Lungs—neg.; Heart—not enlarged, no murmurs, occ. premature beats; Abd.—No tenderness or masses, no organs palpable; Rectal—prostate 2 plus, no masses, blood on examining finger.

Lab; Urine—yellow, 1.017, alb.—0, sug.—0, micro—neg.

Hematocrit—18 (after 500 cc of blood), WBC—5400 with a normal differential. Bleeding and clotting time and prothrombin time was normal.

Blood transfusions were begun and later in the day proctoscopy and barium enema were performed. Proctoscopy was negative to 25 cm. except for the presence of dark maroon blood. No diverticula were noted and no active bleeding was seen. Barium enema showed diverticulosis throughout the colon with the exception of the lower sigmoid. There were no areas of spasm suggesting diverticulitis.

On 25 Jan. 3000 cc. of blood were given, after which the hematocrit was 31, and 1000 cc. were given on 26 Jan., after which the hematocrit was 37. During this time the patient had had no appreciable bleeding and seemed to be doing nicely. He was also receiving calcium gluconate i.v., vitamin K, sulfathaladine, and paregoric and kaopectate.

The night of 26 Jan. the patient had four copious bloody stools and the hematocrit dropped to 34 in spite of 500 cc. of additional blood. Further delay was deemed unwarranted. The patient was taken to surgery and with continuous transfusion running, the patient under general endotracheal anesthesia, the abdomen was opened by a left paramedian incision. The entire colon was filled with blood, seemingly more in the right colon than in the left. There was no blood in the small bowel. The remainder of the abdominal organs were normal. The terminal six inches of ileum and the colon down to just about the rectosigmoid was excised and an end-to-end ileosigmoidostomy was done with an inner row of continuous 000 chromic and an outer row of interrupted quilting cotton. The mesenteric defect was closed and then the abdomen closed in layers with interrupted non-absorbable sutures. The patient received 1500 cc. of blood during and immediately after surgery. The hematocrit immediately postop was 38.

The surgical specimen was opened in the operating room and found to be filled with dark clotted and unclotted blood. Innumerable diverticula were visualized throughout the entire colon, being more preponderant in the right colon.

Postoperatively, gastric suction, i.v., fluids, antibiotics and an indwelling catheter were maintained. The temperature was 98.6° to 99.0° throughout. Gastric suction was stopped on P.O. 5 and oral feedings begun. Urinary retention developed when the catheter was removed. The patient was discharged on 7 Feb., 1954, at which time he was eating well and having three to four soft stools daily. He had to return to the hospital on 13 Feb. for a TUR when acute retention developed. (Residual urine on discharge had been 100 cc.). He withstood this procedure well, and subsequently has had no further difficulty.

SUMMARY

This is a report of a case of massive hemorrhage from diverticulosis of the colon treated by radical subtotal colectomy with a successful result.

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TAXES

At this season of the year we begin to think of income tax paying. Each of us wants to pay what is due, but we also want to manage our income so as to hold our taxes as low as possible.

The actual experience of one individual in 1954: This individual had an income between $9,000 and $10,000. $300 was from a $10,000 investment. When he figured his taxes he found that on this $300 he had to pay $87 to the Government for income tax. This investment after taxes really netted him 2.13 per cent instead of 3 per cent. What about yours? On larger incomes or with fewer dependents the net would be even less.

If this $10,000 had been in E Bonds, as most of his savings are, there would be no taxes due until the Bonds are cashed. His plans are to hold the Bonds until he retires when his income will be much less. At that time there will be very little or no taxes due.

Money invested in E Bonds for 19 years and 8 months increases 80 per cent. $750 grows to $1,346.80.

NO OTHER INVESTMENT HAS SUCH GUARANTEES.

Recent Advances in Diabetes Mellitus*

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THE DISEASE diabetes mellitus is world wide and protean in its nature. The advances in knowledge of this disease and its complications are great, so that in this short paper I will only give a summary of the highlights of recent clinical knowledge, and only briefly mention experimental developments.

Statistics[1] of recent data show that the association of over-weight in diabetes is very well established. Among males a death rate from diabetes was nearly four times that among standard risks in the overweight. Diabetic females were of the same order, whereas this ratio was 1½ times the expected for all causes in overweight of both sexes. The proportion of deaths from arteriosclerosis among diabetics steadily mounts, as a mortality from diabetic coma declines. Joslin's Clinic pointed out since 1944 that 7 out of 10 deaths have been due to arteriosclerosis in one of its many forms. Among 656 recent fatal cases only 2.7 per cent occurred within a year after onset and only 13.4 per cent within 5 years of onset. In nearly one-third of the cases the duration exceeded 20 years.

The diagnosis of diabetes depends upon the routine use of urine testing and the judicious use of blood sugars, both fasting and more complete glucose tolerance testing[2]. The active drives of the American Diabetic Association[3,4,5] in its effort to detect the one million or more hidden diabetics, has borne fruit in many community-wide surveys. The use of the Dreypac testing procedure has enabled large communities to carry forth diabetic detection weeks successfully.

Diabetes may occur almost from birth to very old age. Arbitrarily I will discuss these in parts and types noting pertinent points in the treatment of each.

Farrell[6] et al recently summarized six cases of infantile diabetes occurring from 4½ to 12 months of age. He noted in all cases severe respiratory infections complicating diabetes. In sick infants, it is exceedingly difficult to obtain urine specimens and therefore routine urinalysis examinations are done. The onset of this disease is usually abrupt and the disease severe. There must be a suspicion of the disease in infants in order to check urine and blood for sugar content. These children are labile and great care must be taken to avoid insulin over-dosage.

We may next consider juvenile diabetes and its management, and as Chute[7] has stated the management of a juvenile diabetic revolves about four major principles: 1) insulin administration, 2) dietary regulation, 3) control of exercise, and 4) adequate education of patient and parent. Noting the objectives that diabetic control which approximates as closely as possible the normal physiological state is the only means apparent to reduce the incidents of late complications (coronary disease, retinopathy, and neuropathy) of juvenile diabetics. It is noted by most authorities that the early care of the diabetic child should first be undertaken in a hospital where the three parts of control, which usually take from one to three weeks each, may best be carried out. These parts of control include as delineated by Rippy[8] and similarly by Jackson[9,10], as

1) Establishment of diet and insulin to overcome glycosuria and ketonuria. Rapid relief from symptoms will be noted and weight gain commence—taking about one week.

2) Period of metabolic recovery. The child will continue to improve subjectively and objectively. There will develop a progressive improvement in tolerance for glucose, and insulin will be judiciously reduced from its high peak. Hypoglycemia must be avoided. Lasts two to three weeks.

3) Period of stabilization—insulin requirement becomes relatively constant—one to two weeks.

In the adult the treatment of diabetes has been well summarized by Colwell[11] according to the selection by severity of the disease.

Dr. Bortz[12] has stated, "Criteria of satisfactory control are the same from infancy through the years to old age—the margins of safety, however, vary with age. The child diabetic is known to be susceptible to acidosis. His margin of metabolic reserve is limited. It is practically impossible to hold the growing youngster in nutritional balance without some degree of glycosuria at times, unless he is subjected to frequent episodes of insulin shock. Diet, insulin, and exercise with the avoidance of prolonged exhaustion are the requirements upon which diabetes control is established. The exact level of the blood sugar is but

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*Presented before the Central Medical Society, Jackson, Miss., February 2, 1954.

TABLE I

VARIETIES OF DIABETES MELLITUS AND THE THERAPEUTIC METHODS MOST APPROPRIATE FOR EACH

Severity and Incidence	Common Characteristics	Most Appropriate Treatment
Management by Diet Mild 40% to 50% of Total	Elderly Adults. Obesity common. Symptoms absent or negligible.	"Desugarization" by diet restriction. Weight control. No insulin or temporary at most.
Requiring Insulin (a) Moderate 20 to 30%	Onset Middle Life and Later. Early in young. Control easy.	Any depot insulin in moderate dosage. Often insensitive to insulin.
(b) Severe 10 to 20%	Long duration in adults. Many juveniles. Responsive to minor influences. Balance shifts easily.	Intermediate insulins once daily (Globin, NPH and mixtures).
(c) Labile 10 to 20%	Most children, and juveniles, some adults. Chronic infections. Acidosis on slight provocation. Sensitive to insulin, with unpredictable reactions.	Intermediate insulins twice daily. Some glycosuria condoned. Interval feedings. Avoid reactions. Watch for ketonuria.
Acute Complications Possible in all.	Acute infections. Acidosis any degree. Trauma. Surgery. Other acute illness.	Plain insulin. Frequent injection. Frequent tests to determine response. No reliance on depot insulins.

Reproduced by permission of Dr. Colwell

one measure of control. The available evidence emphasizes the importance of maintaining the level of blood sugar not over 200 mgm. for any prolonged period of time. The more clearly the metabolites and electrolytes of the blood fall within the accepted normal range, the closer the diabetic will come to satisfactory control."

Ricketts[13] outlines well the basic principles in the therapy of diabetes. ADA[4] diet and exchange lists have provided a practical method of control for all patients.

The term steroid diabetes was introduced by Ingall[16] and his co-workers in relationship to diabetes developed experimentally in rats following the administration of compounds BEF and corticotropin as described. The characteristic features which distinguish this from all diabetes and pancreatic type were, a) insensitivity to insulin, b) striking diminution of the glycosuria with fasting in the absence of insulin, and c) negative nitrogen balance. Bookman[17] et al recently described five patients who were treated with corticotropin and/or cortisone and developed diabetes compatible with steroid diabetes. Corticotropin seems to have a more potent diabeticogenic effect. They suggest that impairment of carbohydrate tolerance developed in well-established diabetic stress situations may represent incidents of steroid type precipitated by over-activity of the pituitary-adrenal mechanisms and superimposed on pancreatic insular insufficiency.

Very recently a pre-diabetic state in appearance of overweight babies has been commented on by British and American groups[18],[19]. This is intriguing and may well prove of importance in the future. Allen[19] has suggested a history of hereditary diabetes need not always be present in initial toxemia or illness either traumatic or infectious followed by excessive weight gain and typical symptoms of active diabetes followed by other infections of toxic period followed by severe diabetic symptoms. Women destined to be diabetic are frequently obese and gain excessive weight and glucose tolerance tests frequently reveal impairment of carbohydrate metabolism which may precede frank diabetes by many years.

Miscellaneous types of diabetes include the insulin resistant[20], hyperthyroid, acromegalic, and[21],[22] hemochromatosis, and of but passing interest to the vast general field of diabetes. One important point of note in hemochromatosis has been the use by Davis[22] and Arrow-Smith of repeated massive phlebotomies to deplete iron stores. Marble[21] has noted recently that in occasional patients with hemochromatosis, cardiac signs and symptoms dominate the picture. I have recently noted a case in which acute congestive heart failure was the cause of death. The course is usually rapidly progressively worse and death takes place within several weeks to a few months from onset of cardiac symptoms.

Diabetes mellitus is a disease in which complications over a long period of time frequently dominate the clinical picture. Some of the outstanding complications include diabetic coma[3,24], hypoglycemic reactions[25], concurrent infections, insulin resistance[20], lipodystrophies[26,27], diabetic neuropathy[31], diabetic retinopathy[35,36], central[37], and peripheral[38], vascular changes[46], nephropathy[32, 33], tuberculosis, and pregnancy[39,40].

A brief few words of comment on several of these important changes are given. The use of potassium[28,29], in the second-to-fourth-hour period of severe diabetic coma has become routine in many large clinics. A word of caution is to be noted against the too-early use of glucose injections and of too rapid use of potassium without first evaluating renal status[30]. Duncan[31], advocating the use of the plasma acetone test, appears to add great benefit to our intelligent handling of severe ketosis and diabetic coma. Goodman[25] in a summary article warns against the occurrence of hypoglycemia reactions, especially with the use of long-acting insulins such as PZI. Protracted hypoglycemia coma and death have been known to occur with PZI in the young as well as in the cardiac, and special care must be taken to avoid insulin reactions in order to avoid cerebral or cardiac damage. Many recent studies have confirmed the difficulty with which tuberculosis [32,33], is complicated by diabetes and as a routine I would recommend all diabetic patients have chest films at least every six months throughout their life. Several authorities have commented on lipodystropy—atrophy or hypertrophy following insulin injections. The underlying cause is still unknown. Fabrykant[27] has suggested a vertical deep subcutaneous injection may alleviate many of these unsightly changes plus daily shifting of injection areas. In the treatment of diabetic neuropathy[34] no present agent, such as BAL, pregnant mammalian liver extracts, vitamin B_{12}, can be recommended but all may be tried. Friedenwald's[35,36], studies of diabetic retinopathy are of interest to the general practitioner as well as the eye specialist. No final answer can be given as to the cause of the retinal saccular aneurysms nor any solution as to their cure. Peripheral[38] vascular diseases will occupy the physician's time more as the diabetic tends to grow older and will be associated with newer findings related to atherosclerosis. All authorities do not agree on the proper time of delivery of the pregnant diabetic but they are in unison in that diabetic control should be very strict, with especial attention to avoid the extremes of ketosis and hypoglycemia. The insulin-resistant diabetic should receive large quantities of insulin to tolerance. Present studies involving hormonal and immunological methods have as yet not elucidated the answer to this complex and rather rare problem. Present experimental advances include active studies, both in humans as well as in animals, of the effect of purified glucagon[41] on carbohydrate and corticoid metabolism. The substance HGF causes an elevation in blood glucose in normal and diabetic subjects. Stable and unstable diabetics show differences in their response to HGF. The stable diabetic has a greater and more prolonged rise in blood sugar and less fall in serum inorganic phosphate than in unstable diabetic. Izzo[42] has recently reported on two new types of zinc insulin preparation which were first studied in Denmark[43] and which involved physiochemical changes in zinc insulin without the use of other proteins. Active studies have been carried out with radioactive tagged insulin[44] to determine its site and type of action in cells. Many studies are going forth on serum lipids in diabetes in an effort to help with changes of atherosclerosis. Bornstein[45] has evolved a workable laboratory method for evaluating blood plasma insulin content, and many studies are going on at present involving hepatic vein catheterization and the study of the action of insulin in the liver. Diabetes is a disease with which we will come in more frequent contact as the population continues to age. It is also one in which many practical as well as experimental advances are constantly being made.

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WHOLE TOWN CELEBRATES

Saturday, January 8, was a big day in the life of Dr. Andy Hall, who was selected by the American Medical Association in 1949 as "General Practitioner of the Year."

It was Dr. Hall's ninetieth birthday, and Mt. Vernon, Illinois, his home town, helped him celebrate. The beloved doctor, veteran of three wars, shook hands with thousands of his friends at open house in the city hall, and later was guest of honor at a big birthday dinner. The American Legion presented him with the biggest birthday cake ever baked in Jefferson County.

Dr. Andy received best wishes from his "oldest baby," a man of 64, and his "youngest baby," a two-year-old girl.

THE STATE UNIVERSITY - ITS PURPOSE

by J. D. Williams

(The first of a series of articles designed to present the general aspects of and to answer questions pertaining to Mississippi's four-year medical school.)

State universities through their medical schools have made an increasingly substantial contribution to the health and welfare of the people who support and control them. Twenty-nine of the seventy-seven class A medical schools in the country are divisions of state universities. As a division of a state university, a medical center shares in its total responsibilities, opportunities, functions, and purposes.

Four of the principal purposes of a state university are:

1. To provide the facilities and opportunities for a thorough, sound, and well-balanced liberal or general education;
2. To provide the facilities for professional education that will be consistent with the highest standards of the profession;
3. To encourage research on problems that are or may become of primary concern and interest to the people of the state and nation;
4. To make available to the public its physical and personnel facilities to the end that the economic, social, and spiritual welfare of the people of the state will be improved.

As all state universities, the University of Mississippi is the servant of all of the people of the state. It is free from the control of any group. It accepts the discipline of truth as discovered by free men. It has the social conscience necessary to ennoble the human spirit. It represents the confidence of the people in the ability of all free men to contribute to democratic growth. It is the social arrangement which mobilizes the ideas of all to provide the thrust essential for society's progress.

The state university is a development that is unique to America, and in a more restricted sense, to the United States. It is truly the university of the people, by the people, and for the people. Its roots go back to the earliest days of free citizenry on this continent. It was conceived in the liberty won by men who understood and determined to keep freedom. It was born of an unwavering faith in Democracy. While its beginnings were humble and at times uncertain, it has grown to be the strength of a mighty nation. All knowledge is the province of our modern state universities, no human problem too remote and no learned profession too recondite.

The state university is always working for the advancement of human welfare. It is to the state universities that the people turn for discoveries that will make the land more productive and the resources of the earth more useful. The republic of minds that the state university represents has aided farm and field, trade and finance, as well as government. It has opened its doors to all who can profit from its resources.

Many responsible and informed people believe that the state university is society's best public investment. Certainly the returns have been a hundredfold in human progress, in wealth, and in human service.

One's respect and admiration for those who chartered the University of Mississippi are not lessened by the realization of their vision and conception of what it should be. That vision is as good today as it was over one hundred six years ago.

" . . it is a story of people, not a story of legislative bills and paper records and bricks and mortar, not even a story of things like hills and trees, which last a little longer and change a little less rapidly. It is a story of thousands of people, men and women, most of them passing by but each of them pausing long enough to make or even consecrate his own little part of this ground, and the other, the few, staying and aging and some of them dying at last, after they had built their own best and greatest years into the edifice which stands now as a monument not to their deaths but to their lives. It is a story of faith in times of darkness and exuberance in times of success, and always of a quiet pride in the nobility of accomplishment. It is a story of how that first converging of men upon a dot on the map of Mississippi became soon a double motion, when a radiation of people out to the bounds of the state and indeed of the nation became the complement of that convergence, and the University became the heart of a great throbbing of culture and influence, ceaselessly coming into and simultaneously going out from it, borne always by people."[1]

The fundamental purpose of state support of higher education is to provide for the common welfare. State universities are created and supported to sustain the democracy, to raise the level of political literacy, and to create and develop the informed intelligence. Out of the public need grew this great institution.

The College of Liberal Arts is, and always has been, the very core and center of the University of Mississippi. Its purpose is to develop an intelligent and socially sensitive person, able and willing to discharge his responsibilities to the state, the community, the family, and the individual, and to develop the ability to gain the satisfactions that come from deeper spiritual and artistic perception.

The College of Law as a part of the University of Mississippi was established as a result of a great social need. The products of the Law School are in every court and in substantial numbers in the legislature. The welfare, not only of their individual clients, but of society as a whole, is dependent upon how well they perform their tasks of judicial development.

Just as in medicine and law, the curricula of professional schools such as education, business, pharmacy, and engineering in our universities today are as complex as the needs of society. The graduate school cuts across all of these and has a character and responsibility of its own and is no less complex in its purpose, function, and organization.

"Every Mississippian can be justly proud of the University. Its history is an honorable one. Through a hundred years of struggle, the finest in the character of the people of the state has expressed itself in this institution. Thousands of citizens have contributed of their substance, and for many it was a willing, yet burdensome sacrifice; thousands of students have added their youthful spirit of idealism, enthusiasm, and adventure; hundreds of persons have served through faculty and staff to give purpose, direction, and character; all of these and many more are represented in the University."[2]

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[1] James Allen Cabaniss, *A History of the University of Mississippi*, (Birmingham, 1949), p. x.

[2] Ibid. p. 189

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THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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EDITORIALS

ANEURYSM OF THE ABDOMINAL AORTA

GUEST EDITORIAL

In years past, the finding of a pulsating abdominal mass was only of passing interest. There was no effective treatment, and the busy clinician could only hope for the best in such cases, and then pass on to more pressing problems.

Developments in the field of vascular surgery have radically changed the prognosis of abdominal aneurysm in the last few years. Now one need no longer view a case of aneurysm of the abdominal aorta with pessimism and treat it with careful neglect. Contrarily, the physician should be alert for such cases; and he should lose no time in placing that patient in the care of someone capable of resecting the aneurysm and replacing it with a graft.

Of some 75 cases now being studied by my colleagues and me, the most common symptoms appear to be abdominal pain, usually epigastric or periumbilical, and occasionally located in the back or flank. There is often only a vague sensation of abdominal fullness, and the first inkling of trouble may be the discovery of a pulsating abdominal mass. An increase in pain may indicate a leakage of blood and herald an impending fatal rupture.

The hallmark of abdominal aneurysm is the presence of a pulsating abdominal mass. If rupture occurs, then shock, with all of its signs, is added to the presence of a mass and distended abdomen.

Rupture of an abdominal aneurysm often occurs slowly, and frequently several hours or days may pass before death occurs. These are golden hours in which a life can be saved by immediate surgery. Gerbode has called attention to this, and Cooley has reported several such successful cases.

The ease of diagnosis, the known poor prognosis, and the demonstrated successful treatment of aneurysms of the aorta, should make for a greatly renewed interest in such cases by all physicians.

Robert P. McBurney, M.D.
Sanders Clinic
Memphis, Tennessee

CIGARETTES AND CANCER

GUEST EDITORIAL

"And now you is quit preachin' and gone to meddlin' " constitutes the gag line of a widespread story of the preacher whose congregation was thoroughly in accord with his admonitions until he began to condemn their favorite pasttime.

In a sense the medical profession, or that part of it given to positive opinions, has done just that by arbitrarily condemning cigarettes as the cause, or the principal cause, of the alarming increase in the frequency of lung cancers. It MAY be true, but the proof of it is far from complete and there are many loopholes in it. It is befitting such a presumably educated, thoughtful group of responsible men that they examine the evidence with care and guard their pronouncements with a bit of caution lest future findings prove them wrong, thereby exposing them to the ridicule of those whose confidence they seek to maintain.

It is true that smoking is unquestionably harmful to certain individual patients with specific disorders, but it is equally true that some heavy, even excessive, smokers live to a ripe old age with a minimum of illness throughout their lives.

Men are created equal only in the sight of God and in their claim upon His love and affection. They are not equally endowed either physically or mentally at birth, and it has been shown statistically that ON THE AVERAGE smoking tends to shorten life expectancy because of its effect upon individual people whose physical material and physiology are more readily affected by the products of smoke. Cigarette smoke causes vasoconstriction which is harmful to people who have a tendency to intermittent claudication or whose coronary arteries are inadequate. The in-ing is detrimental to the patient with a peptic crease in gastric acidity following heavy smok-ulcer. And the asthmatic, bronchiectatic or emphysematous patient whose bronchial cleansing mechanism is faulty can ill afford to smoke because the products of smoke are not rejected by the impaired membranes lining the respiratory tract.

Whether or not the marked increase in lung cancer is due to smoking is another problem, a complicated one, and the actual answers may not be known for another twenty years.

It is true that a very large proportion of men who are found to have epidermoid carcinoma of the bronchi and lungs are heavy smokers and have been so for many years, but there are those who have never smoked in their lives. It is also true that the experiments of Dr. Evarts Graham and his associates, applying the filtrates of cigarette smoke to the skin of cancer-susceptible mice, indicate that the tars from cigarette smoke CAN be carcinogenic. So the case against cigarettes involves some very strong suggestive evidence which deserves careful and extensive investigation.

Strong suggestive evidence, however, it not proof and may be misleading. Obviously other factors enter into the picture. First of all, observe that the mice who developed the cancers (and not all did so) had to be carefully selected for their hereditary tendency to have cancers. Why does the human skin not react similarly to those deep yellow tobacco stains which some heavy smokers carry on their fingers for years? Why does not cancer of the larynx and upper air passages show a comparable increase in incidence if smoking is the sole or major factor? A whimsical observation attributed to Dr. Mims Gage and vigorously denied by him contains the premise that perhaps the tremendous increase in frequency of carcinoma of the large bowel might be due to inhaling cigarette smoke too deeply.

Statistics will not be conclusive until the smoking habits of a major segment of the population are known and the ratio of smokers with carcinoma of the lung compared to the frequency of carcinoma of the lung in non-smokers. It will take time and an enormous amount of effort to collect the data necessary for a valid conclusion.

In the meantime the medical profession as a whole will do well to avoid taking either extreme position. Their counsel to patients who definitely and demonstrably need to avoid smoking will bear greater weight if they are not identified as fanatics on the subject either pro or con.

Information available today suggests that the tar inhaled with tobacco smoke CAN be the trigger mechanism for the development of bronchiogenic cancer IN SOME CASES, perhaps in those individuals whose hereditary tendencies toward cancer are combined with a faulty cleansing mechanism so that the tars fail to be swept out of the bronchi and are left in contact with the membranes for a sufficient time to provide a cancer-producing irritation. For that reason patients, especially those who have a cancer family history, should be informed of the possible danger and advised to seek other pleasures until such a time as investigators can give up an answer based upon demonstrated fact and not upon opinion. Others who have vascular diseases, bronchial asthma, bronchiectasis or pulmonary emphysema must be advised to avoid smoking because of the specific incompatibility between the diseases mentioned and smoking. The careful consideration and individualization of each case will lend weight to the physician's advice and multiply the chances of his admonitions being followed for the good of the patient.

Duane Carr, M.D.
899 Madison Avenue
Memphis, Tennessee

We shall soon clear the decks for the Mississippi State Association which meets this year at Biloxi. This association is on the up and up and a record attendance is anticipated. Dr. C. H. McCall, able and a active, is dedicating the year to the doctors of Mississippi.

MID-SOUTH POSTGRADUATE ASSEMBLY

All out for the Mid-South Postgraduate Medical Assembly, February 8, 9, 10, 11 with headquarters at the Peabody Hotel, in Memphis! It promises us a fine program. It strives to have the leading men in the nation to bring us the best in each field of medicine and surgery.

We look to Memphis as the capital of the mid-South. It has a fine medical atmosphere, blessed by the largest medical school in the nation.

Dr. R. B. Caldwell of Baldwyn will preside as president. He is well known throughout Mississippi through various services to organized medicine. He is now president of the State Board of Health and is a past-president of the Mississippi State Medical Association. He is also colonel on Governor White's staff.

Dr. Joe Verser of Harrisburg, Arkansas, is incoming president. Tennessee will select the president-elect.

The past presidents of the Assembly have their banquet on Wednesday night, a fellowship that all the group look forward to sharing.

Be sure to visit the exhibits and let their representatives have some of your time. They play a big part in making the Mid-South and in financing the meeting. We appreciate every one of them. We salute Dr. Gilbert Levy for his fine work for nearly 30 years as director of exhibits.

To our secretary, Dr. Thurman Crawford, and to the program committee we give deserved credit for their faithful work in arranging the excellent scientific program.

OUR MEDICAL SCHOOL

We welcome in this issue the first of a cogent series of brief articles from the desk of the University of Mississippi's Chancellor J. D. Williams.

It will not be long now until Mississippi shall see its four-year medical school in operation. For a half century we have had a top rating two-year school at the University. The four-year school, still an integrant of the University, will be located in Jackson, our state's capital and one of the South's fastest growing cities. Its 125,000 population is predicted to reach 200,000 shortly. The school is favored by an exceptionally fine location topographically and otherwise.

This nine-million-dollar set up centralizes a hospital system which is unique in the nation. Our hospitals are so affiliated that all of the clinical material required by the teaching school can be provided. Just now the eyes of the nation are upon us, challenging us to present a medical school able to rise to a position of leadership. With vision and purpose we can profit from the trials of other medical schools, eschew selfishness and mediocrity, and within a very few years earn a primacy among the medical schools of the nation.

BETTER TO REHABILITATE

Vocational Rehabilitation has been doing a good job in Mississippi for several years. It has proved by numberless case records that astonishing dividends return from a reasonable investment in training the handicapped to be productive. In dollars and cents, according to government statistics, one dollar invested in rehabilitation reaps ten in tax monies, or 1,000 per cent. In human values reclaimed, who can estimate? If the handicapped person remains unsalvaged, a dependent on welfare rolls, society is virtually enforcing and paying for his dereliction.

Unfortunately, funds from our federal government for vocational rehabilitation require matching. Right at this time the $200,000 available by matching would lift our state vocational rehabilitation program to top performance.

We would urge our legislators to take cognizance of the high dividends such an investment at this time would yield.

Dr. Ernest Kelly has been chosen head of the staff at the Baptist Memorial Hospital in Memphis. A native of Tupelo, Mississippi, he ennobles the profession both as a physician and as a gentleman. He officed with the late Dr. E. M. Holder, another great former Mississippian, a surgeon of ability and wisdom and a keen student of human philosophy.

ERRATA

In reporting the retirement of Mr. C. P. Loranz from executive secretary of the Southern Medical Association to an advisory position, it was stated that Mr. Butts succeeded Mr. Loranz. Mr. V. O. Foster of Nashville, Tenn., is now executive secretary and treasurer, and Mr. Robert F. Butts is the business manager.

We regret that Dr. John G. Egger of Drew, Mississippi, was listed in the *Directory* of Mississippi physicians as being from Indianola.

PRESIDENT OF MID-SOUTH POSTGRADUATE MEDICAL ASSEMBLY

Dr. R. B. Caldwell, M. D.

ADDITIONAL MID-SOUTH EXHIBITORS

American Ferment Co., Inc., New York, N. Y.
Audio-Digest Foundation, Glendale, Calif.
Dr. Herbert W. Collins, London, Ky.
Desitin Chemical Co., Providence, R. I.

MANAGING PUBLISHER NAMED FOR TODAY'S HEALTH MAGAZINE

William W. Hetherington has been named managing publisher of *Today's Health* magazine, the official consumer publication of the American Medical Association.

Doctor Lull also announced a six-man editorial board for *Today's Health*: Drs. Walter E. Vest Huntington, W. Va.; Julian P. Price, Florence, S. C.; Austin Smith, editor of the *Journal of the AMA;* George F. Lull; Mr. Leo Brown, director of the AMA's Department of Public Relations, and Dr. W. W. Bauer, chief editor of *Today's Health* and chairman of the editorial board.

Hetherington, of Evanston, Ill., has been a staff member of *Today's Health* since 1948, with primary responsibility in advertising and sales activities.

COURSE IN THE CLINICAL PATHOLOGY AND PATHOLOGY OF PARASITIC DISEASES

A short intensive course on the laboratory diagnosis and pathology of parasitic infections will be presented August 15-27, 1955, at the Louisiana State University School of Medicine in New Orleans.

The course is designed primarily for pathologists and technologists. However, general practitioners, internists, pediatricians, gastroenterologists and physicians engaged in the practice of public health and tropical medicine who are interested in the laboratory diagnosis of parasitic infections are welcome to attend. The instruction and training will be of assistance to pathologists who are preparing for board examinations, to pathologists and physicians who are responsible for the diagnosis of parasitic infections in their laboratories and to technologists engaged in this specialty.

Registrants should bring their microscopes, equipped with mechanical stages, and their microscope lamps. A limited number of places will be available. The fee for the course is $50.00.

Persons interested in attending this course may write to:

Dr. Clyde Swartzwelder, Department of Microbiology, Louisiana State University School of Medicine, New Orleans 12, La.

WILL SELL FOR A MODEST PRICE the following instruments and office equipment, all in excellent condition: Brown-Buerger cystoscope with convex and concave sheaths; Kompak model baumanometer, Pandora professional bag, electric headlight, electric transilluminator, diagnostic set, new T and A instruments, incomplete set Van Buren urethral sounds, Lefort sound with thread filiform, Kirshner wire drill with 3 bows, army type examining table, large heat lamp, gas Castle instrument sterilizer, single burner gas plate, double burner gas plate, five-drawer legal size steel file, small laboratory or x-ray steel report files. Miscellaneous items, such as Allis clamps, suture and Mayo scissors, needle holders, tissue forceps, pelvimeter, and large supply unopened hypo needles for I.V. and I.M., and subcutaneous use.

Mrs. Margaret Hudson, 4104 Seminole Ave.,
Jackson, Miss.

Fifty Year Club Biographica

GEORGE WILLIAM GOOGE

George William Googe was born in Fulton, Mississippi, December 15, 1876.

He attended Oakland Normal Institute and also the University of Tennessee.

On July 3, 1903, he was graduated from the University of Kentucky and later served an intership at the Louisville City Hospital.

Following graduation, he located at Silver Springs (Mississippi) and since 1908, has practiced at Rienzi.

On June 20, 1954, Doctor Googe was honored by the Fifty-Year Club of the State Medical Association with lifetime membership. On this day, Doctor Googe was fittingly honored by the members of the community where he has practiced serving his fellowman faithfully and well.

HARVEY LINWOOD SHANNON

Harvey Linwood Shannon, son of George Washington and Maggie Harvey Shannon, was born October 4, 1879 in Air Mount, Mississippi.

He attended school at Yalobusha County, and was graduated from Coffeeville High School. He attended Mississippi College two years and was graduated from the University of Mississippi in 1900. While in college he was an outstanding athlete.

In 1903, he graduated from Louisville Medical College. Following graduation, Doctor Shannon did postgraduate study at St. Joseph's Hospital, Lexington, Kentucky, and the New York Polyclinic. He has practiced at Itta Bena, Shelby, Clarksdale, and Flora.

In World War I, Doctor Shannon served as Captain. He has held membership in the Leflore County Medical Society and the Tri-State Medical Society, and has been active in his community.

On August 1, the citizens of Flora and surrounding areas, honored Doctor Shannon with a Golden Jubilee Service at the Methodist Church. In honor of his fifty years of service to humanity, Dr. H. C. Ricks presented him with a certificate of the Fifty Year Club of the State Medical Association.

As a token of appreciation, the devoted people of the community presented Doctor Shannon with gifts which included a television set.

Over a long period of time, Doctor Shannon has served his fellowman faithfully and well and richly deserves the recognition he has received.

KENNETH FRANCIS McRAE

Kenneth Francis McRae, son of John and Amanda Smith McRae, was born in Tishomingo County on March 28, 1879.

He received his early education in Tishomingo County, attended dental school at Southern Medical College, Atlanta, Georgia for two terms and passed the board in Mississippi and obtained a license to practice dentistry. While in dental school, he demonstrated unusual ability in the field and received two awards. He received his B. S. degree from Iuka Normal Institute and his medical degree from Memphis Hospital Medical College (now the University of Tennessee) in 1902. He did postgraduate study in New Orleans.

Following graduation, Doctor McRae located at Burnsville and has practiced at Belden, Corinth, and Belmont. He served as President of the Northeast Thirteen Counties Medical Society and also of the Tishomingo County Medical Society.

On November 28, 1954, the Fifty Year Club of the State Medical Association honored Doctor McRae with lifetime membership in the club. He was honored on this occasion at the First Baptist Church of Belmont when Dr. W. H. Anderson presented the certificate to him before a gathering of friends and associates.

For many years, Doctor McRae has served his fellowman faithfully and well and continues in the active practice of medicine in Belmont where he has made an outstanding contribution to the health of the community.

ABSTRACT FROM PEDIATRIC LITERATURE

Harvey F. Garrison, M. D.

Effect Of Antimicrobial Therapy On The Prognosis Of Primary Tuberculosis In Children. E. M. Lincoln. Am. Rec. Tuberc. 69:682-689 (May) 1954.

Of 980 children with primary pulmonary tuberculosis who were admitted to the tuberculosis ward of Bellevue Hospital, New York, between 1930 and 1946 and did not receive specific therapy, 211 (21.5 per cent) died. Of 421 children with primary pulmonary tuberculosis who were admitted to the same hospital between 1947 and 1951, only 147 (35 per cent) were given specific treatment with streptomycin, p-aminosalicylic acid, and thiazolsulfone (promizole), and only 21 (5 per cent) of the 421 children died. In 1952, isoniazid was added to the therapeutic regimen, and of the 129 patients treated 2 died; the mortality rate thus was further reduced to 1.5 per cent. There is evidence in these 129 patients, as well as information from other workers, that isoniazid may prevent the development of complications of primary pulmonary tuberculosis, especially meningitis. To investigate this important point, a comparative study of a carefully controlled series of children with primary tuberculosis in which the patients to be given antimicrobial therapy are selected at random and all the children are followed for at least one year is in progress at the Bellevue Hospital. Since the actual incidence of meningitis in primary tuberculosis is unknown, a very large number of cases may be required to demonstrate the effectiveness of isoniazid in the prevention of meningitis. A cooperative study by a larger group of investigators using similar methods of selecting patients for antimicrobial therapy and a similar plan of treatment might be most helpful for this purpose.

COMMENT:

The tendency of most of us to neglect essential antibiotics or effective medication in cases of tuberculosis. We think this is a very timely article on the subject and should command attention from the medical profession all over the country.

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Book Reviews

FLUID THERAPY, by James D. Hardy, m.s. (Chem.), m.d., f.a.c.s. Associate Professor of Surgery and Director of the Surgical Laboratories, Medical College of the University of Tennessee, Memphis, Diplomate, American Board of Surgery and American Board of Thoracic Surgery. 225 Pages. 77 Illustrations. 8 Tables, $5.50. Published October, 1954, by Lea and Tables. $5.50. Published October, 1954, by Lea and Febiger, Philadelphia. Now Professor of Surgery, University of Mississippi College of Medicine, Jackson, Miss.

Modern-day procedures demand that surgeons, surgical residents, interns and practicing physicians have a practical understanding of fluid therapy. Each day and each new patient presents new problems as to how one can best provide blood, water electrolytes, calories, and nitrogen in a volume of intravenous fluid that will not be excessive. These problems can be well met and solved with the sound guidance found in this book.

In few fields of medicine and surgery have advances been more rapid than in that of fluid metabolism. This is a natural outgrowth of the major role that supportive therapy plays in successful preoperative, operative and postoperative management. Its value has been increased considerably by the advent of isotopes and other substances with which to measure the body fluid compartments and electrolyte pools. This knowledge makes it possible to study fluid shifts in the living subject and thus improve supportive treatment.

Dr. Hardy makes excellent use of this important scientific advancement as he presents, in this book, a clear, concise consideration of total fluid therapy. Throughout every chapter, the major physiologic factors involved are examined with a view to providing factual clinical answers to the questions of *how much - of what fluid - by what route - how fast?* General physiology of body fluid regulation and descriptions of selected laboratory procedures are presented first. The author then gives a simple, but widely applicable approach, to the management of clinical problems.

Special attention is given to potassium depletion, management of intestinal obstruction, fluid therapy in infants and children, and problems peculiar to the surgical specialties. There are discussions of acute and chronic renal failure, treatment of burns, management of blood loss, and liquid alimentation. Many of the complications involved in treatment are described and common and significant reactions are explained. The importance of using milliequivalents rather than milligrams or volumes per cent is stressed. A separate chapter is devoted to an understanding of this measurement.

ATLAS OF ORTHOPEDIC TRACTION PROCEDURES, by Carlo Scuderi, M.D., Ph. D., Clinical Associate Professor of Surgery, University of Illinois; Professor of Surgery, Cook County Graduate School, Chicago. Published by the C. V. Mosby Company, St. Louis, $12.50. 230 pp., illustrated, indexed.

Atlas of Orthopedic Traction Procedures, in the words of the author, "is to fill a definite gap in orthopedic literature." By photographs, line drawings and simple description, the details of how to set up an orthopedic traction are put down. Being a teacher himself, he believes the book will be a timesaver for teachers. He also thinks of the help it will be for nurses and physiotherapists, as well as students, interns, and residents in orthopedic service.

Basic requirements, attention to patient, bed, and various kinds of equipment traction, slings, splints, pulleys, frames, all are discussed with clearly illustrated position and technic.

REVIEW OF MEDICAL MICROBIOLOGY, by Ernest Jawetz, Ph. D., M.D.; Joseph L. Melnick, Ph. D., Edward A. Adelberg, Ph. D. Published by Lange Medical Publications, Los Altos, Calif. Price $4.50. 360 pages, indexed.

This is a comprehensive text directed primarily at the medical student, house officer, and practicing physician. Included is extensive discussion of basic science: bacteria, chemotherapy, antigens and antibodies, Gram-negative bacilli, spiral microorganisms, viruses, etc.

This book will no doubt be a concise and invaluable addition to the medical library of the student or practitioner.

HYPERTENSION, HUMORAL AND NEUROGENIC FACTORS, by editors for the Ciba Foundation, G.E.W. Wolstenholme, O.B.E., M.A., B.C.H., and Margaret P. Cameron, M.A., A.B.I.S.
THE KIDNEY, by editors of the Ciba Foundation and the Renal Association.

These two books are presented jointly because they are twin volumes containing remarkably valuable symposia on hypertension and the kidney. For those who desire the information, the Ciba Foundation is an educational and scientific charity under the laws of England, founded by a trust deed made in 1947. In its first five years it has sponsored twenty-nine symposia, attended by scientific experts who were chosen to participate because of their eminence. The general purpose of these symposia is to promote international cooperation in scientific research. Consequently, these volumes are simply the intimate edited discussions of these experts, presented informally.

The volume on *Hypertension* discusses the problem from the applied physiology point of view, with many new and useful data presented.

The Kidney includes structural and functional relationships in the kidney, the regulation of acid-base balance, general problems of electrolyte excretion, and renal influence over body fluid.

Each volume is $6.75, around 300 pages, and published by Little, Brown and Company, Boston.

BEYOND THE GERM THEORY, edited by the New York Academy of Medicine and published by the Health Education Council. 182pp., $4.00.

This book deals with factors other than germs that cause illness and poor health. It emphasizes the disease-producing effects of deprivation and stress, bearing directly on clinical medicine, public health, and health education.

"Disturbances in society can seriously impair the family to the detriment of its function as a cultivator of the social emotions . . . " and on this premise the editor cites various cultures in which family life is starved, regimented, or otherwise forbidden development of gratifying social interaction. His whole effort is to provide more implements for social diagnosis and planning.

Deaths

DR. B. H. HIGDON

Services for Dr. Budd H. Higdon, 73, prominent physician of Sunflower, Miss., and brother of C. M. Higdon, president of the Brookhaven Bank and Trust Company, were held December 19 at Sunflower.

A native of Copiah County, Dr. Higdon was graduated with honors in medicine at Tulane University in 1913 and spent his entire medical career at Sunflower. He served in the medical corps at Ft. Oglethorpe, Ga., in World War I.

Dr. Higdon was a charter member of the Baptist church in Sunflower and chairman of the board of deacons. He had served as mayor of Sunflower for two terms, was a past president of the Rotary club there and was a 32nd degree Mason and Shriner. He was a past president and member of the Delta Medical Association, was a member of the Mississippi, Southern, and American Medical associations. He was included in *Who's Who in the Southwest* in 1951.

Survivors in addition to his brother in Brookhaven, include his wife, Mrs. Mabel Reditt Higdon of Sunflower; and two other brothers, Will of Piersol, Texas, and Walter of Jackson.

DR. E. E. FARMER

Dr. Eli Estus Farmer, who was born in Westville and had practiced medicine in Cleveland for the past 37 years, died at the Cleveland City Hospital on December 20. He was 71.

Services were conducted at the Cleveland First Methodist church with burial following in the Cleveland cemetery under the direction of Thweatt Funeral Home.

One of Cleveland's oldest doctors in the point of service, Dr. Farmer was a graduate of the University of Tennessee College of Medicine and interned at Baptist Hospital in Memphis. He served in France and Germany for three years during World War I with the rank of first lieutenant.

He was a Methodist, former member of the Cleveland Exchange Club and member of the State Medical Association.

He leaves his wife, Mrs. Marguerite Brokau Farmer, and a brother Isaac N. Farmer of Panola, Miss.

DR. PHILLIPS

Funeral services were held in Oxford on December 21 for Dr. W. W. Phillips, 75, who died of a heart attack.

Licensed to practice medicine in Mississippi in 1906, Dr. Phillips returned to the county in which he was born to spend his professional life there. He received his degree in medicine from North Carolina Medical School, Charlotte, N. C.

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1. Don't go to the meetings.
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5. Never accept office. It is easier to criticize than to do things.
6. Get sore if you are not appointed on committees; but if you are, do not attend committee meetings.
7. If asked by the chairman to give your opinion on some matter, tell her you have nothing to say. After the meeting tell everything how things should be done.
8. Do nothing more than absolutely necessary, but when members use their ability to help matters along, howl that the organization is run by a "clique."
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Hemangioma of the Ovary With Ascites

ROBERT P. McBURNEY, M.D.[†] and
MERLIN TRUMBULL, M.D.[†]
Memphis, Tennessee

Abdominal and/or pleural effusion, associated with ovarian tumors, was first reported seventy-five years ago, and has come to be widely recognized within the past two decades, but many surgeons of long experience have never encountered such a case. Reports of such cases, therefore, continue to be of interest, particularly since the clinical picture may simulate that of heart, kidney, or liver disease, or that of malignant ascites.

The following case is of particular interest in that the primary tumor of the ovary, associated with the abdominal effusion, proved to be an hemangioma—one of the rarest of ovarian tumors.

Report of Case

The patient, a woman aged 57, was first seen on December 15, 1953, complaining of abdominal swelling and cramping after meals. These symptoms had been present for approximately one year. At their onset, the swelling was intermittent and the pain was not severe. During the three months prior to examination, the swelling had not subsided, but had gradually increased. The pain had become constant, was of an aching type, and was more severe in the epigastrium and pelvic area, and was associated with tenderness in both areas. The patient had also experienced attacks of cramping pain with radiation to the shoulder region. She was troubled with nausea, and had noticed a loss of weight. Almost any type of food seemed to aggravate her symptoms.

There was no history of alcoholism, hepatitis, or jaundice. Her last menstrual period had been two years previously. She had had no operations, and her personal and family histories were of no significance.

Physical examination revealed the patient's blood pressure to be 170 systolic and 110 diastolic. She weighed 170 pounds; the pulse was 78 and regular; and her temperature was 99°F. Auscultation and percussion of the chest revealed nothing abnormal. The abdomen was distended with fluid. The uterus was thought to be normal in size, but its outline could not be accurately determined because of abdominal fluid. Bimanual palpation of the adnexae was unsatisfactory, but so far as could be determined, no masses were present.

The blood picture was normal, and the urinalysis negative. The Kahn test and all liver function tests were negative.

Roentgenograms and fluoroscopy of the chest revealed pinpoint calcifications throughout both lung fields, but no evidence of active disease. Both leaflets of the diaphragm were high. The aortic knuckle was prominent. The heart was of normal size. The stomach and duodenal roentgenograms were normal, although the small intestine seemed to be displaced upward from pressure below. Roentgenograms of the hands were negative.

An electrocardiogram revealed a left ventricular abnormality, non-specific in type, and nothing else of significance.

A paracentesis was carried out, and 3½ liters of greenish yellow fluid were removed. This was followed by a peritoneoscopy, which showed a normal liver except for a slight enlargement, apparently incident to a mild congestion. A small portion of the stomach, several areas of small intestine, and the spleen were visualized, and all appeared normal. There were no visible metastatic implants on the peritoneum. The ascitic fluid was negative for acid fast bacilli, and smears showed no tumor cells.

A needle biopsy made of the liver revealed nothing abnormal. This was also true of a microscopic study of an excised supraclavicular node.

An esophogram revealed no esophageal varices, hiatus hernia, or diverticula.

Because of the normal liver function tests, and the lack of evidence of other disease, we were unable to account for the ascites. The possibility of some type of portal vein obstruction was considered.

The patient was given ammonium chloride tablets for diuresis, and placed on a high vitamin, high protein, low fat diet, and advised to return for another examination in six weeks.

She returned on February 26, 1954, complaining of increased abdominal cramping, loss of appetite, and nausea, with further weight loss. In the interim, her home physician had given her a mercurial diuretic twice weekly. One week previously he had removed 6 quarts of straw colored fluid from her abdomen by paracentesis.

On examination, the abdomen was again considerably distended. Blood studies were made, which included repeated liver function tests, and they showed nothing abnormal. The urine contained a large quantity of epithelial debris, but was otherwise negative. Fluoroscopy again demonstrated an elevation of the diaphragm, as well as miliary lesions throughout both lung fields.

Another paracentesis was performed, and 3 liters of fluid were removed. Cultures of the fluid at this time were also negative. Following the paracentesis, the abdomen and pelvis were thoroughly examined. In the left adnexal region, there was a definite area of tenderness and fullness, about 4 centimeters in diameter, giving the impression of an ovarian tumor. The right adnexa and uterus were apparently normal.

From the discovery of the ovarian tumor in association with the ascitic fluid, and in the absence of organic disease elsewhere, a diagnosis of Meig's type of syndrome was made.

At operation, it was necessary to remove a large amount of fluid from the peritoneal cavity to permit exploration. The liver was smooth, its surface glistening, and presented no sign of cirrhosis. Neither the spleen nor the lymph nodes were enlarged. The stomach, duodenum, pancreas, small and large intestines, and kidneys seemed to be in good condition. In the pelvis, however, the left ovary contained a large, spongy, red, vascular tumor, about

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[†] From the Sanders Clinic and Baptist Memorial Hospital.

4 to 5 centimeters in diameter. The right ovary and uterus appeared entirely normal. In the region of the right ovary, and in several areas over the pelvis, there was an exudate, obviously inflammatory, suggesting localized peritonitis. Both ovaries and tubes were removed.

The pathologist's diagnosis was hemangioma of the ovary and acute peritoneal reaction. The fluid removed contained no tumor cells.

The patient's recovery proceeded without interruption, and she was dismissed from the hospital ten days postoperatively. At the time of her dismissal, some fluid was still present in the abdomen. She was given mercurial diuretics to be taken at home, and was requested to return after one week. Upon her return at the appointed time, the incision had completely healed, and there was little, if any, fluid in the abdomen. The patient's appetite was good, her former symptoms had disappeared, and she felt well.

Further follow-up several months later revealed her to be in good health.

The pathologist reported the left ovary to measure 4x3x2 cm. It had a mottled appearance, with areas of red, white, and pink coloration. The cut surface was homogenous and had a fine spongy character. (Fig. I).

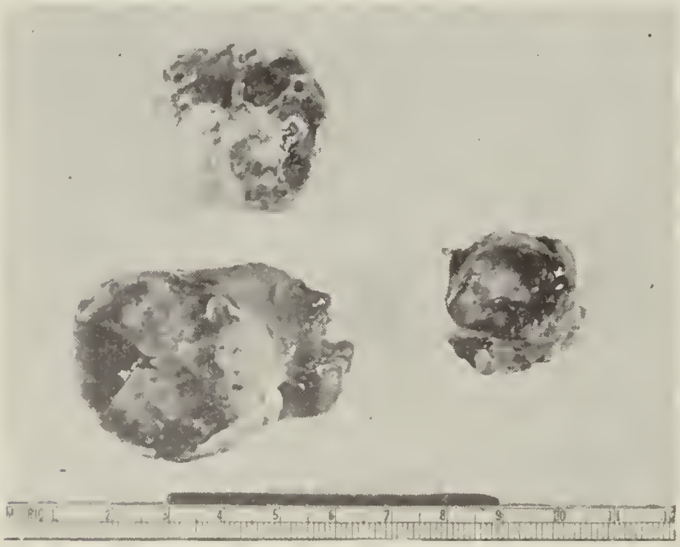

Fig. I. Hemangioma of ovary with cut surface to show vascular appearance. The normal sized opposite ovary (right) is shown for comparison.

Microscopic sections of this tumor showed almost complete replacement of normal ovarian tissue by a tumor composed of blood vessels separated by an edematous stroma. Most of the vessels were small and capillary in size, and contained varying amounts of blood. In some areas, the vessels were quite dilated and cavernous in appearance. Some of the larger vessels had a thick hyalinized wall which is relatively acellular and no muscle was present. The endothelial lining of the vascular spaces was slightly plump and consisted of a single layer. Mitotic figures were absent. (Fig II.)

Except for some necrotic exudate over their surfaces with inflammation, the opposite ovary and both Fallopian tubes were negative.

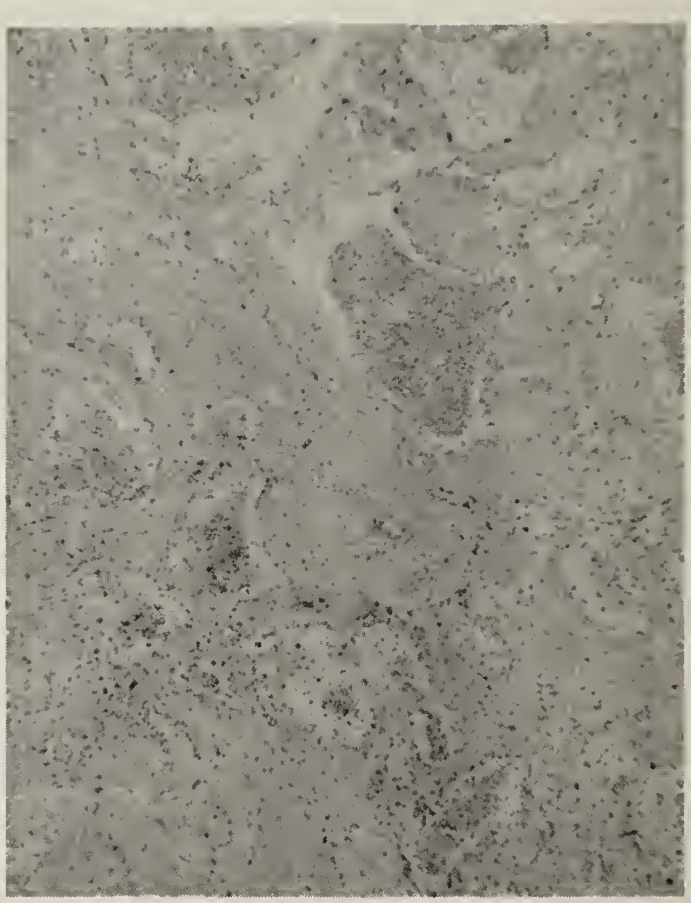

Fig. II. Vascular spaces filled with blood cells. Entire tumor of this appearance. Marked edema is present (x100) in the stroma.

Literature Review and Discussion

Hemangiomas may occur in any organ which has a vascular supply. An hemangioma of the ovary is quite rare. We were able to find only a very few documented cases in the literature.

In 1869, Payne[1] reported a case in which there were multiple vascular tumors found in various organs at autopsy. These were hemangiomas. They were most numerous in the liver, but a single similar tumor was present in each ovary. No photomicrographs were presented, but his description fit that of cavernous hemangioma.

Marckwald[2] in 1894, reported a case and mentioned Payne's case, and that of another writer. The latter was reported as angioma formation in both ovaries of a child. Marckwald's case was that of a 22-year-old woman who died of tuberculosis. At autopsy, the right ovary was found to be twice normal size and contained what was apparently a cavernous and capillary hemangioma.

Shearer[3], in 1935, reported a case of a solid tumor of the ovary in a 3½-year-old girl. The tumor had extended onto the uterus, and the microscopic description was that of a capillary and cavernous hemangioma.

Schaeffer[4], in 1939, reported a case of a cystic tumor in a 12-year-old girl, which was filled with sanguinous fluid, and which microscopically had numerous large and small vessels present in the cyst wall. His diagnosis was cavernous hemangioma of the ovary.

Ackermann[5], in 1942, reviewed the literature, and reported two cases. His first case was that of a 63-year-old woman who died of a diabetic acidosis. At autopsy, there was found a 10 cm.-by-7 cm.-sized sharply circumscribed nodule in the right ovary. On histologic examination, this consisted of numerous cavities filled with blood and surrounded with ovarian tissue. The walls of the cavities were covered with flat endothelium and connective tissue.

Ackermann's second case was that of a 28-year-old woman who had a pan-hysterectomy for carcinoma of the cervix. In the hilus of one ovary was a small circumscribed area which measured 3x2 mm. This area microscopically consisted of cavernous blood filled spaces, lined by flat endothelium, with connective tissue below the endothelium.

Ackermann quotes Keller[6] as having reported a case in which a "fist-sized" tumor of the right adnexa was removed, and which showed blood vessel formation in the walls of other vessels. This patient had ascites.

There were three other cases referred to by Ackermann. In each, a portion of an ovary was replaced by cavernous vessel formation. There is some question as to whether these were true hemangiomas.

Geist[7], in 1942, discussed the cases reported in the literature. He states that some of these cases represented masses of vascular dilatation due to interference with venous circulation, or were varices of the hilar vessels. He was of the opinion that a true angioma was usually a discrete nodule in an otherwise normal ovary, or was only one aspect of a generalized disease.

Undoubtedly, some of the cases reported, such as that of Braithwaite[8], represent varices of hilar vessels, and as such should not be considered true hemangiomas.

On the basis of our review, it appears that approximately nine or ten cases of true hemangiomas have been described. The rarity of the tumor is obvious.

The term, "Meig's", which originally was applied to fibroma of the ovary, with ascites and pleural effusion, is now frequently used to designate abdominal and/or chest fluid in association with a wide variety of ovarian tumors. Although ascites alone associated with ovarian tumor does not strictly conform to Meig's original description, there is little doubt but that the mechanism of fluid formation is similar in such cases. The only thing lacking is the presence of, or the detection of, the presence of pleural effusion.

The literature reveals reports of such cases associated with cystoma, pseudomucinous multilocular cystadenoma, fibroadenoma, fibrosarcoma, cystadenocarcinoma, theca cell and granulosa cell tumors, teratoma, Brenner tumor, lutein cell and aberrant thyroid tumors of the ovary, and even with uterine leoamyomas.

The majority of patients in whom Meig's syndrome is observed are middle aged, although a considerable number are found in those between 35 and 40, and a few in those beyond 60 years of age. Parity seems to have no influence upon its development. The duration of symptoms varies from a few weeks or months to several years.

The outstanding feature is the rapid formation of fluid and its almost equally rapid subsidence following removal of the ovarian tumor. Schaffner and Kirkpatrick[10] reported a case in which 1500 cc. of fluid were withdrawn from the thorax daily for three months. The basis for the formation of the fluid apparently is an intercellular edema within the tumor. Often the blood vessels are dilated, and occasionally they rupture, which gives rise to hemorrhage within the tumor and blood in the fluid. Pressure by the tumor upon the large lymphatic vessels, and torsion of the ovarian pedicle may also be of significance as etiological agents.

Several theories have been advanced to explain the hydrothorax. According to the most probable theory, which is based upon experiment, the fluid passes into the chest through lymph channels, and as the channels do not function in the reverse direction, the fluid remains in the chest. This theory is supported by the fact that the fluid is often limited to the right pleural cavity, where the lymph vessels are most abundant.

The chief symptoms are those of pressure. Fluid predominantly in the chest gives rise to dyspnea and coughing, whereas fluid in the abdomen produces distention and nausea. As in our case, intestinal function may also be impaired. Pain may or may not be associated; many patients have none, while others, as was true of our patient, may have considerable pain.

Physical examination will elicit evidence of the fluid, whether in the chest or abdomen. Often, however, the fluid may mask the presence of the ovarian tumor. Cahnenson, et al[11], reported that in several of their cases the tumor was not discovered prior to operation. In view of this contingency, it is essential that a pelvic examination be made following paracentesis.

Laboratory tests are of value in the differential diagnosis, but they give little, if any, positive information as to the nature of the disease. Tests of the fluid are indicated to rule out malignancy and tuberculosis. Liver, heart, and kidney function tests should be made, even if the tumor is palpable, not only for the purpose of differential diagnosis, but also because of the possibility that some other disease condition may be responsible for the fluid. Roentgenograms of the chest and abdominal organs are also indicated.

Treatment—The treatment is excision of the ovarian tumor. Thereafter, the fluid will subside, often immediately, or within a short period of time, as the associated peritoneal reaction subsides.

Summary

In view of the rare incidence of ascites associated with ovarian tumor, and the similarity of this clinical picture to that of a number of other diseases, the diagnosis of this condition often presents considerable difficulty. One may be misled by an inability to palpate the ovarian tumor because of the abdominal fluid, as was true in the case reported herein. The point to be borne in mind is, that in the presence of abdominal fluid, the pelvic examination should be repeated following aspiration of the fluid.

In the case presented, the ovarian tumor was associated with abdominal ascites. Of particular interest, however, is the fact that the tumor proved to be an hemangioma.

This rare combination of hemangioma of the ovary with ascites is apparently the second such case to be reported in the literature.

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SUNDRY INTERVIEWS

Abraham Lincoln, 16th President of U. S. (1809-1865): "What constitutes the bulwark of our liberty and independence? It is not our frowning battlements, our bristling seacoasts, our army and our navy. These are not our reliance against tyranny. All of those may be turned against us without making us weaker for the struggle. Our reliance is in the love of liberty which God has planted in us. Our defense is in the spirit which prizes liberty as the heritage of all men, in all lands everywhere. Destroy this spirit, and you have planted the seeds of despotism at your own doors."

Abraham Lincoln, 16th President of the U. S. (1809-65): "That some should be rich shows that others may become rich, and hence is just encouragement to industry and enterprise. Let not him who hath no house tear down the house of his neighbor; but rather let him strive diligently to build one for himself, thus, for example, showing confidence that when his own is built, it will stand undisturbed.'

Acute Abdominal Injuries*

FREDERICK E. KREDEL, M.D.†
Charleston, S. C.

Acute abdominal injuries present many problems in surgical care. There has been no decline in the incidence of trauma to the abdomen but rather the reverse. The mortality has shown a gratifying decrease in recent years. In military experience the fatality rate has been reduced from an estimated 90 per cent in the War between the States to 50 per cent in World War I and to as low as about 20 per cent in World War II. Figures from civil practice in recent years are even lower since few of these involve wounds by irregular shell fragments and the problem of transportation for definitive care is much simpler.

There are many reasons for the improved salvage after abdominal trauma. Chief among these is the treatment of shock from hemorrhage by adequate blood replacement. Modern knowledge in the care of the patient as a whole, particularly as regards proper maintenance of fluid, electrolyte and nitrogen balance, has been an important factor. The various drugs to combat infection have been highly useful and it is pleasing to have some of the newer broad-spectrum antibiotics available for parenteral injection. Not the least among the causes of the better batting-average is the increasing number of well-trained surgeons who have had a long period of residency in teaching hospitals and, many of them, a period of military experience as well.

Penetrating wounds offer little difficulty in the decision for laparotomy. Any case where an object has penetrated or traversed the peritoneal cavity should be explored. The wound of entrance with missiles of high velocity may be at some distance from the abdomen and thus cause confusion when the position of the body in relation to the path of the bullet is not known. Even stab wounds over the lower thorax or buttocks may penetrate the peritoneal cavity if the instrument is sufficient length. Stab wounds even over the abdomen proper will carry a moderate percentage of negative explorations Yet it is impossible to determine which is which beforehand. Even a bullet wound will be found, on rare occasions, to have caused no injury requiring repair.

Non-penetrating injuries may pose serious problems in diagnosis and treatment. Clinical signs of shock not relieved by ordinary restorative measures and not due to bleeding elsewhere or the rapid development of a mass suggests hemorrhage such as from a rupture of the spleen or a large laceration of the liver. Retroperitoneal hemorrhage, as from a rupture of the kidney or laceration of the pancreas, may also occur. Rupture of the intestinal tract can occur from contusive force particularly at points of fixation of the bowel. Three such cases have been seen on our service during the past six months and will be described later. Intraperitoneal rupture of the distended urinary bladder may happen with or without an associated fracture of the pelvis.

The patient not infrequently has injuries to other parts of the body which may demand prior attention. In any case, it is necessary that the so-called vital functions be maintained at a satisfactory level. A patent air-way has first priority, if compromised. A tension pneumothorax must be relieved by aspiration and, if necessary, by trocar thoracotomy with water seal drainage. Severe shock requires prompt treatment with a plasma expander while whole blood in adequate quantities is being obtained. An associated cerebral injury may modify the timing of operation or the choice of anesthetic. Wounds of the extremities, except for arrest of hemorrhage, ordinarily can be carried along with first-aid or provisional type of care until the nature of the abdominal lesion can be clarified. The stomach should be emptied before induction of a general anesthetic.

There has been some difference of opinion about the value of x-ray examinations in acute abdominal injuries. No one condones unnecessary transportation and shifting about of a badly shocked patient with multiple injuries nor undue delay to secure films in the face of exsanguinating hemorrhage. Yet satisfactory scout films without moving the patient from the stretcher or disturbing the continuity of treatment for shock may yield information of value in planning the operation. When there is no wound of exit, a film may indicate the probable pathway of a bullet and thus the structures which may have been injured. In closed injuries, the presence of intraperitoneal air clinches the indication for laparotomy. Obliteration of the psoas shadow may indicate a retroperitoneal effusion and more attention to the possibility of a rupture of the kidney. Emergency cystograms or, in some cases, intravenous pyelograms may be helpful in doubtful cases of rupture of the bladder and kidney respectively.

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*Presented at the sixty-sixth annual meeting of the Mid-South Postgraduate Medical Assembly, Memphis, Tenn., Feb. 8-11, 1955.

†From the Department of Surgery, Medical College of South Carolina and the Roper Hospital.

The incision, in most cases, is a vertical paramedian one since it allows rapid entry into the peritoneal cavity and easy extension up or down. When the area of injury seems localized, as in a stab wound or in a ruptured spleen without deep shock, the preferred transverse or subcostal incision may be used. Wounds of entrance or exit are ordinarily draped out of the field of the incision with towels and cared for at the end of the laparotomy. On the other hand, it is desirable to have a wide area of skin exposed in the whole draping, so that stab incisions can be made in the flanks for drains, if necessary.

Once the peritoneum is opened the first priority is the control of continuing hemorrhage. If the spleen is ruptured, the pedicle is rapidly secured between the extended fingers and clamped as adequate exposure is obtained. Bleeding from the liver can be arrested by compressive packing followed by insertion of hemostatic materials such as gelfoam usually re-inforced by large sutures of plain catgut tied not too tightly. Bleeding points in mesenteric vessels should be caught accurately and not by mass ligation or suture. Any extensive retroperitoneal hematoma should be thoroughly investigated as to the source of the bleeding and not ignored simply because it does not enlarge under one's eye.

The gastro-intestinal tract, as well as other hollow viscera, should be examined in systematic fashion so that no possible perforation may be overlooked. It is not important whether one proceeds from the stomach downward, from the rectum upward, or from the cecum in both directions, as long as the search is adequate to the case. Particularly difficult to detect are perforations within the mesenteric attachments. When there is any suspicion of such a lesion, it is worth the time and trouble to dissect back the leaf of the mesentery and ascertain whether or not a penetration of the lumen has occurred. As perforations are disclosed, they may be marked with an Allis clamp to be dealt with later or sutured on the spot. A transverse closure with two layers of interrupted non-absorbable sutures takes a little more time, but results in less kinking and narrowing of the lumen than the time-honored purse-string. As was mandatory for the military, most wounds of the colon are best exteriorized. In one instance during the past year, a loop of transverse colon with four lacerations, which were simply whipped over with fine chromic catgut, healed so well that the loop could be replaced in the abdomen thirteen days after injury without ever opening it. He went home twenty-two days after injury with all wounds healed. One case of a single perforation of the sigmoid with an empty bowel was sutured primarily without exteriorization. Dilation of the sphincter ani was the only decompressive measure employed. However, proximal decompression is usually safer when rectosigmoid perforations are not exteriorized. This can be accomplished by transverse colostomy or tube cecostomy.

Drainage through separate flank or lateral incisions has been provided in a number of instances where localized infection might be anticipated. These include splenectomy, regardless of an obvious injury to the tail of the pancreas, lacerations of the kidney, with or without nephrectomy, and perforations of the retroperitoneal portions of the intestinal tract. Drainage following injuries to the liver or biliary tract as well as urinary bladder also are desirable.

It may be of interest to note three cases of rupture of the intestine from blunt trauma observed during the past six months. 1) A six-year-old colored female was admitted with a moderate general peritonitis 29 hours after being kicked by a mule in the mid-abdomen. X-ray of the abdomen in the upright position showed free air under the diaphragm. At operation a 5 to 7 mm. circular blowout of the upper ileum on its antimesenteric border 60 cm. below the ligament of Treitz was found and repaired. Recovery under antibiotic protection was admitted uneventful. 2) A three-year-old colored male was admitted 19 hours after a blow on the abdomen from falling on the end of his stick-horse. There was a blowout of his appendicocecal junction which was fixed retrocecally. Appendectomy and appendicocecostomy were performed. 3) An adult truck driver sustained a steering post blow to the abdomen. Within several hours he developed severe pain and tenderness on the right. The upper portion of the psoas shadow was obscured in the x-ray. As a retroperitoneal hematoma was explored, there was found a 10 cm. long rupture of the inferior portion of the duodenum. Repair was accomplished with no subsequent duodenal fistula. Recovery was complicated by a postoperative psychosis and wound disruption requiring closure with through and through wire. Eviscerations are not rare after abdominal injuries and special care in primary closure is desirable.

In conclusion, acute abdominal injuries, like the poor, are always with us. The vast majority of those who reach the emergency room alive can be salvaged by present day methods of treatment which are generally available. Among the causes of mortality at the present time are: 1) truly exsanguinating hemorrhage as from a large tear in the aorta or vena cava with death before repair can be done, 2) associated injuries to other parts of the body fatal in themselves, 3) renal shutdown with the picture of lower nephron nephrosis following prolonged shock or incompatibilities between donor bloods especially when very large amounts of blood have been necessary. Prompt transportation to the hospital is highly important. In our area, as elsewhere, the city and county police as well as the State Highway Patrol, have been most helpful in this regard. In the city of Charleston, with its relatively small geographic boundaries, it has been found economical to have an ambulance function routinely as one of the regular squad cars of the city police and thus be readily available for transportation of the wounded when needed and avoid the expense of hiring personnel for ambulance service alone on a purely stand-by basis.

Infections of the Newborn*

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THE INCIDENCE of infections of the newborn is probably much lower than formerly, due no doubt to better obstetrical care. Nevertheless recent statistics show, that in the newborn infants who die and are autopsied, ten to fifteen per cent of the deaths still can be attributed to infection[1]. Recent unpublished data from the Premature Unit in Charity Hospital at New Orleans confirm this percentage[2]. As the death-rate from other causes falls, more emphasis is placed on infections.

ETIOLOGY

The very title of the paper implies that there is a difference between infections of the newborn and infections of older infants. This difference lies principally in the type of etiologic agent. Whereas in older infants pneumococci, *H. influenzae*, hemolytic streptococci are apt to be the offenders, numerous studies in newborns have shown that such is not the case. Smith and Bloomfield[3] at Stanford University; Torrey and Reese[4] at Cornell; and others, have shown that the predominant organisms in the oropharynx of the newborn are streptococci, staphylococci and *E. coli*. Torrey and Reese cultured the nasopharynx every six hours and showed, that while it is usually sterile at birth, the flora at the end of 24 hours consists predominantly of staphylococci and streptococci. Torrey and Reese also compared the flora of 70 breast-fed babies with that of their mothers. While several of the mothers carried Hemophilus and pneumococci, only three of the babies picked them up, and they lost them again rapidly.

Now if the nasopharyngeal flora of even a breast-fed newborn does not reflect that of the adults around him, where do his organisms come from?

Investigations by Whitacre, Franklin and Loeb[5] at Vanderbilt in the middle 1940s showed that the organisms to be found in the eyes of the newborn at the time of delivery were predominantly staphylococci, streptococci and *E. coli*. Postpartum uterine cultures after uncomplicated deliveries revealed the same organisms[6]. Since cultures of the nasopharynx later show the same ones again, the conclusion is inescapable that the first bacteria which take up residence, so to speak, in the newborn, are those which he picks up on the way through the birth canal.

Whereas the newborns in the series of Torrey and Reese yielded in general sterile cultures at the time of birth, Cornelison and his coworkers[7] at Baylor found an increase in positive cultures at the time of birth dependent directly on the length of time the mother's membranes had been ruptured. Also, they found *E. coli* in 11 per cent of the infants examined. They conclude that "the oronasal cavity of the newborn has been found to contain staphylococci, the enterococcus group of streptococci and moniliae in approximately the same ratio as other investigators have found them to be present in the vaginal tract of the pregnant woman." However the percentage of coliforms in their series was higher, representing, they suggest, contamination during delivery. Torrey and Reese postulate that differences in the *E. coli* carrier rate may reflect differences in obstetrical asepsis.

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CLINICAL FEATURES

With these background data on the usual flora of the skin and respiratory tract in the newborn, we can go on to a discussion of the actual clinical infections to which he is susceptible, and it is not surprising that most of the severe infections of the newborn are due to the staphylococcus, enterococcus, streptococcus, or colon bacillus to which the infant is inevitably exposed during delivery. Further, it is evident that the gonococci, monilia, salmonella account for others. Granuloma venereum, poliomyelitis, infectious hepatitis, are other infections to which infants may be exposed at the time of birth if the mother is herself infected.

The most frequent sites of neonatal infection are certainly the skin, eyes, and umbilicus. Perhaps *eye infections* are the commonest of all[8]. Of these the majority nowadays are staphylococcal. Indeed the staphylococcus is the arch-offender in neonatal infections in whatever location. From all over the world there are reports of penicillin-resistant staphylococci in nurseries. The incidence of penicillin resistance runs around 60-80 per cent[8],[9]. At least half of these organisms are also streptomycin resistant and many aureomycin resistant. Thus treatment presents a problem. Determination of drug sensitivity is essential. As of now, erythromycin is the drug of choice in staphylococcal infections, but since resistance to this drug develops very rapidly, we must anticipate that it will not long remain the drug of choice.

The development of drug-resistant strains of gonococcus also poses a problem, both in treatment and in prophylaxis. Penicillin resistance is developing among gonococci, to some extent in this country but particularly abroad[10]. Thus we would be alert for the possible need to switch to some other antibiotic, such as terramycin, in treating gonococcal infections. So far as prophylaxis is concerned, many feel at the present time that a switch away from 1 per cent silver nitrate is inadvisable. The emergency of penicillin-resistant strains of gonococcus, the rather rapid deterioration of penicillin solutions and ointments and the possible sensitization of infants to a drug they may later need are just so many arguments in favor of the old standby, silver nitrate[11]. Since the gonococcal infection is usually contracted by the infant during delivery, and since the incubation period of gonococcal infections is short, the gonococcus should be suspected in any purulent conjunctivitis arising soon after birth.

Another infection contracted in the same manner, but characterized by a 10-day to 2-week incubation period, is inclusion blennorrhea. Though this virus rarely causes symptoms when present in the female genital tract, it can be the cause of rather severe and protracted conjunctivitis in both newborns and older individuals. Early in the course of the infection there is a free mucopurulent discharge, as in other forms of ophthalmia neonatorum; in the later stage of the disease the conjunctiva characteristically assumes a granular appearance, with formation of follicles. Diagnosis is readily made from conjunctival scrapings stained with Giemsa's stain, or even with Wright's stain. The differential diagnosis is important, since inclusion blennorrhea responds well to treatment with sulfonamides but not at all to other antibiotics.

Infections of the *skin* are, of course, usually due to the staphylococcus, which invades the skin via small areas of trauma. Every housewife knows that a peach or a plum or an apple keeps better with the wax or "bloom" on it; to remove the wax by vigorous washing promotes invasion of the skin of the fruit by bacterial contaminants. Similarly nowadays we know the best means of preventing skin infections in the newborn is to leave the vernix caseosa in place. The occasional skin infection which does arise could for a few days, be treated with penicillin with every hope of prompt cure. Nowadays, however, the problem of drug resistance confronts us acutely. I believe that today the intelligent treatment of any bacteriological laboratory is to identify the etiologic agent and determine its drug sensitivity.

Omphalitis always causes concern because of the intimate relationship between the umbilical veins and the portal system. Although eye and skin infections may serve as a focus for *sepsis*, omphalitis is probably more often the starting point for this most serious form of infection. The etiologic agent in sepsis of the newborn is usually one of the triad of pathogens which we have mentioned already[12],[13]. The symptoms of sepsis are often indefinite: loss of weight, anorexia, lassitude, irritability are almost always present, and should make one suspicious of a possible bloodstream infection. The *temperature* was 101° or over in half of Silverman's cases and almost all of Dunham's.

However it can be subnormal, particularly in premature or weak babies. At any rate it is usually fluctuant. *Jaundice* is the next most common symptom and is present in about half of the patients. *Cutaneous lesions* of some sort are frequent: petechiae, or deep bruises, or pustules or deep papules. Anemia and leucocytosis above 20,000 are present in about half the cases.

Osteomyelitis and *meningitis* are two complications of sepsis of the newborn which deserve mention. Osteomyelitis most often involves the jaw in the newborn, is usually staphylococcal in origin, and carries a curiously benign prognosis, even before the days of any chemotherapeutic agents[14].

Meningitis on the other hand is most often due to one of the coliform organisms and the outlook in this group is serious indeed[15].

Pulmonary infections do not seem to assume, in newborns, the importance that they do in later infancy. Pneumonia is, on the whole, uncommon; more frequent is the occurrence of multiple *lung abscesses,* usually staphylococcal. These present a serious diagnostic problem, inasmuch as they do not usually give rise to definite physical signs and can only be detected on x-ray. They most often occur following prolonged labor, probably due to aspiration of infected amniotic fluid.

Infections of the mouth are due most often to monilia. Anderson, Sage and Spaulding[16] in Philadelphia made a comparative study of vaginal swabs of mothers, and mouth swabs of infants, and found that where the mother's swab was positive, the average onset of thrush in the infant was 3 days; but if the mother's swab was negative, the onset was delayed. Not only is there at present no good specific treatment for thrush, but antibiotics are probably contraindicated.

The salivary glands may become infected in the neonatal period; in fact suppuration of the parotids or submaxillary glands is not a rare entity. Schulman[17] in a recent review reported the etiologic agent to be usually staphylococci, occasionally streptococci or *E. coli*.

Epidemic diarrhea of the newborn is a much-feared entity. Due only occasionally to Salmonella organisms acquired from the mother, its etiology is most often obscure. A virus etiology has often been suggested but never really satisfactorily proved. Recently, in England and in this country, particularly virulent strains of *E. coli* have been implicated in epidemic diarrhea of the newborn[18]. I, for one, believe the evidence points strongly to these organisms being in some way implicated. Most of them are at least moderately susceptible to the action of terramycin, aureomycin, chloramphenicol.

PROPHYLAXIS

A review of the causes of infection in the newborn leads inescapably to the idea that obstetrical asepsis, often thought of as a safeguard mainly against postpartum infection in the mother, is of the greatest importance to the welfare of the infant. In the case of the premature infant, the situation is more complicated than for the infant born at term, whose stay in the nursery is brief. The premature, born with a poor supply of protective antibodies, is exposed over a long period to the hazards of cross-infection; moreover, the manifestations of infection in the premature are even more hazy than in full-term infants and even serious infections may be asymptomatic. Thus there is a good deal of support for the point of view that all prematures should receive prophylactic antibiotics. Wiser, it seems to me, is the practice of reserving prophylactic antibiotics for infants born of mothers with a bacterial infection; and for infants born after prolonged labor or precipitate delivery.

CONCLUSION

Infections in the newborn are most often due to infectious agents acquired during passage through the birth canal. These agents are most often staphylococci, enterococci or *E. coli.* Since many strains of these bacteria are insusceptible to one or another of the usual antibiotics, successful treatment requires determination of antibiotic sensitivities. Good obstetrical asepsis provides the best possible prophylaxis.

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Gallbladder and Duct Surgery*

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THE NORMAL gallbladder lies between the right quadrate lobes of the liver, varies from 7 to 10 cm. in length and 2.5 to 3 cm. in width. Its capacity is approximately 20 cc. The arterial supply is furnished by the cystic artery coming from the right branch of the hepatic artery. The veins empty into the right branch of the portal, with smaller veins emptying directly into the liver. Lymphatics are very extensive and drain into glands near the neck of the gallbladder. The hepatic duct is formed by the right and left bile ducts usually at the point of emergency from the liver, varies from 3 to 5 cm. in length, passes downward in the right border of the gastrohepatic omentum with the vena cava behind and hepatic artery to the left. It unites with the cystic duct to form the common bile duct. The cystic duct varies from 2.5 to 4 cm. in length, and passes downward and backward from gallbladder in gastrohepatic omentum, having hepatic artery to left and portal vein behind.

Operations on the gallbladder and common and hepatic bile ducts are among the most common of all abdominal procedures. Thorough understanding of the anatomy and physiology of the biliary tract and appreciation of the various pathologic conditions that may occur in these organs are essential for anyone doing this type of surgery.

The common bile duct, formed by the union of the hepatic and cystic ducts, is about 7 cm. in length, and passes downward and backward in the hepatoduodenal portion of the gastrohepatic ligament, having the hepatic artery and its gastroduodenal branch to left and portal vein behind. The common duct passes behind the first portion of duodenum, then between second portion of duodenum and the head of the pancreas, and enters duodenum through posterior and inner wall of descending portion, running obliquely for about 2 cm. through its walls and opening upon a papilla of mucous membrane approximately 10 cm. from the pylorus. Pancreatic duct joins common duct ordinarily just before its termination.

CHOLECYSTECTOMY

Indications

The most common disease of the gallbladder is cholecystitis, with or without stones. Cholecystitis is usually on an infectious basis but may be nonbacterial. Various strains of streptococci, B. coli, B. typhosus and staphylococci are the common organisms found in diseased gallbladders. Infection usually reaches gallbladder by lymphatic route but may result from an hematogenous spread or by direct extension from infection in other organs. Stasis in the gallbladder is the result of chronic obstruction of the cystic duct, and unquestionably is an important factor in the development of cholecystitis in a large percentage of cases.

Removal of a diseased gallbladder or even a normal gallbladder has never in my experience resulted in any untoward effects to the patient, although it has been pointed out histologically that removal of the gallbladder does cause dilatation of extrahepatic ducts and some dilatation of the intrahepatic ducts. Generally, however, I feel that a normal gallbladder has very definite functions and probably should not be removed unless the disease process demands it. The gallbladder acts as a reservoir for bile, which is stored in this organ between meals. A large amount of water content of this bile is absorbed through the mucosal lining of the gallbladder and when this bile is released into the intestinal tract to aid digestion during meals and immediately after, it is in a highly concentrated form.

I will not review the clinical picture of acute cholecystitis in detail. I am in agreement, however, with the general trend in advocation of earlier operations for acute cholecystitis and it is my policy at the present time that when an attack of acute cholecystitis does not subside after a few hours, surgical intervention—cholecystectomy if possible—is indicated. Cholecystostomy has been done very rarely by me in recent years and unless the patient's general condition or age contraindicates removal of the entire gallbladder I believe cholecystectomy should be carried out. Remember that, although perforation of an empyema of the gallbladder is rare, it does occur, infection may extend into the adjacent organs such as the liver, duodenum or colon, or give rise to generalized peritonitis. I believe the advocacy of earlier operations in acute cholecystitis by reduction in liver damage has lowered operative mortality.

Chronic cholecystitis may occur with or without stones. The diagnosis without stones is difficult and may be confused with various other conditions. It is my belief that cholecystectomy is rarely indicated for chronic cholecystitis without stones and as I review end results in patients who have had cholecystectomy in the past my poor results are in patients in whom cholecystectomy was done for chronic cholecystitis without stones. In general these patients, particularly when there has been no definite history of colic, have been treated medically. Certainly, nonvisualization of a gallbladder as demonstrated by cholecystography on a single occasion is not in itself sufficient indication to warrant cholecystectomy. Peptic ulcer, irritable or functional colon, pregnancy and other conditions may be responsible.

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Chronic cholecystitis with cholelithiasis, however, is a surgical condition, and a chronically infected gallbladder containing stones should be removed. Gallstones may be single or multiple and vary in size, and nearly always contain cholesterol but may contain calcium and bile pigments. They occur in gallbladder hepatic, cystic or common ducts. Gallstones are probably the result of numerous factors, the principal ones: obstruction and stasis, infection and altered cholesterol metabolism. They may remain in the gallbladder many years, causing few if any symptoms. A stone lodged in the cystic duct presents a typical picture of biliary colic. If attack does not subside or the patient is not operated on, hydrops of the gallbladder will result, and if infection sets in, emphyema will develop. Jaundice usually does not occur from a stone in the cystic duct unless there is associated hepatitis. However, obstruction due to a stone in the common duct will produce jaundice after 36 to 48 hours. Chills, fever, nausea and vomiting, and clay-colored stools will be associated.

With obstruction of the common duct due to stone, the gallbladder is rarely dilated and because of longstanding infection of the biliary system so often found in these cases, an actual contraction of the gallbladder is common. Distended gallbladders resulting from gradual occlusion of the common duct due to malignancy at the head of the pancreas is an important differential point. This is known as Courvoisier's Law.

Carcinoma of the gallbladder accounts for approximately 5 per cent of all cases of cancer, and is the most common malignant tumor of this region. It is almost invariably associated with stones. Benign polyps and true adenomas are found occasionally, but probably don't have much clinical significance.

Technic

With these fundamental considerations in mind, the technics of the actual removal of the gallbladder and exploration of bile ducts as employed in the hospital are described.

Spinal anesthesia may be ideal for surgery of the biliary tract, with trained anesthetists, because of the relaxation it affords. I use a 1 per cent pontocaine combined with a 10 per cent glucose solution at times for gallbladder surgery, after the method described by Sise. Any incision for this surgery must be planned so that an adequate exposure of all parts be obtained. For many years I have routinely used a right rectus, muscle-splitting incision, and see no reason to change. Various others have been used, particularly the transverse incision to which I have no objection, except that a more adequate exposure of ducts can be obtained with longitudinal incision.

Following the opening of the peritoneal cavity, a careful manual palpation of all intra-abdominal structures is made whenever possible, giving particular attention to stomach, duodenum, pancreas and colon. The disease process in gallbladder and liver is noted.

The gallbladder tip is next grasped, rotating the liver as much as possible, adhesions between gallbladder and colon, stomach and duodenum are divided and wet gauze packs placed over the duodenum so that, with long-handled retractors, duodenum can be rotated medially and slight tension exerted on the common duct. At this point a wet gauze strip is inserted into the foramen of Winslow and the kidney pouch. This is important as it prevents contamination of these areas by escaping bile or blood, and I believe it is an important factor in lessening the incidence of subsequent subhepatic and subdiaphragmatic abscesses.

A second clamp is next applied to the ampulla of the gallbladder so that traction may be exerted on the cystic artery and cystic duct. Longitudinal incisions are next made in the peritoneum overlying the gallbladder so that short flaps of peritoneum can be preserved for reperitonealization of the gallbladder bed. This is an important technical point as it materially reduces postoperative adhesions between liver and duodenum which may result in serious complications.

Whenever possible I favor removal of the gallbladder from below upward. Preliminary control of hemorrhage by ligating the cystic artery before the gallbladder is removed makes dissection less difficult and more accurate. However, in the presence of acute and subacute inflammation of the gallbladder it is frequently easier to strip the gallbladder from its bed, leaving a gauze pack in the liver to control bleeding while dissection of cystic artery and duct is performed.

I have never believed in mass ligation of the pedicle of the gallbladder, and my experience is this failure to dissect out accurately the cystic artery and duct and bifurcation of cystic and hepatic ducts has been the cause of many cases of stricture formation. The artery should first be ligated. With the artery ligated convolutions in cystic duct tend to straighten out by further traction on the gallbladder. The cystic duct is then ligated and divided and cholecystectomy completed by removal of gallbladder from its fascial and vessel attachments to the liver.

Frequently accessory bile ducts are encountered, having a direct connection between the gallbladder and liver. When these are encountered they should be securely ligated. In my experience several times I have encountered accessory bile ducts of considerable size when drainage of bile from them, if I had not ligated them, might have led to serious consequences. When the gallbladder has been removed it is immediately opened and contents and character of the gallbladder closely examined.

CHOLEDOCHOSTOMY

Indications

Indications for exploration of the common duct have been repeatedly found. Certainly, one of the most important indications is the presence of a longstanding infection of the gallbladder with thickening of its wall and contraction. This is usually associated with dilatation of the common and hepatic ducts and is in itself a dependable indication of common duct stones. In about 4 per cent of my cases I have found stones in the common duct when there were not stones in the gallbladder. Absence of gallstones does not necessarily indicate that stones may not be present in the common bile duct.

Any abnormality to palpation of ducts themselves must be investigated by exploration.

Jaundice, in history or physical examination, is definite indication for exploration of the common duct. However, in many of my patients having common duct stones, no jaundice was present in history or at time of operation.

The appearance of bile itself, withdrawn through a fine needle from the common duct, indicates it should be opened. Golden yellow, normal-appearing bile strongly indicates stones will be found. Cloudy, thickened, infected bile indicates infection and is usually associated with the presence of common duct stones.

Technic

Exploration of the common duct is done through a longitudinal incision placed as close as possible to the duodenum. The majority of common duct stones are found at the lower end of the common duct near the ampulla of Vater. Following opening of the common duct it is usually advisable to aspirate with suction the contents of the hepatic ducts so that the field of operation will not be soiled any more than is necessary by outflow of bile through the incision.

I use various types of scoops, buckets and forceps in searching common and hepatic ducts for stones. I investigate ducts with instruments of this type and then dilate the sphincter of Oddi. This will permit a small stone conceivably left in the duct to be washed through into the duodenum. A small urethral catheter will then allow a thorough irrigation of ducts so that any débris or small stones can be washed out.

Occasionally a stone will be found in the ampulla which cannot be dislodged either upward or pushed into the duodenum. Although it is unusual, I have had to resort to transduodenal choledochostomy. This procedure should be done if a stone at the lower end of the common duct cannot be dislodged otherwise.

I have never closed a common duct by primary suture. A T tube is left inserted in the opening of the common duct, and should be placed not so close to the duodenum that it might erode into it and produce a duodenal fistula. The common duct can be closed tightly around this tube, and the tube drawn through the upper angle of the wound. The defect in gastrohepatic omentum is closed, care being taken to reperitonealize carefully the stumps of the cystic artery and duct, and the peritoneal flaps are closed over the liver bed. All packs are removed, a rubber dam drain left inserted in the foramen of Winslow and drawn out, together with the T tube, through the upper angle of the wound. The wound is then carefully closed in layers about these drains.

Ordinarily about the seventh day the T tube is clamped off for an hour twice and this time is increased each day so that by the twelfth day the T tube is clamped off continuously. If it proves at that time that bile is passing into the intestinal tract, as shown by stools of normal color, and

(Continued on page 295)

Orthopedic Problems of Infancy and Childhood*

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Discussion of orthopedic problems of childhood as given here will be limited to three main groups of defects. Of course it would be impossible to cover all of the disorders of this type satisfactorily in the time allotted, but a few of the major disorders will be discussed. These will be divided first into the *congenital* defects, second, the *degenerative* defects, and the third will be the *acquired* defects.

Under the congenital abnormalities, of course there are many extreme conditions that can be encountered, and they are so extensive and varied that it would be impossible to cover them all; however the more common ones and the ones that can be given the greatest relief will be discussed.

First, CLUB FEET: As you know, this may be an isolated family case or it may be one of a series in a family that has a definite hereditary tendency. There are three separate deformities in a club foot. First, there will be a shortening of the heel cord with the ankle being held at below a right angle. second, there will be a toeing in of the forefoot, and third, there will be an increase in the height of the arch. That consists of three separate disorders that must require correction. Treatment of this gets its best results when started early. I cannot emphasize too much the importance of early treatment of such defects. If an infant can have treatment begun at a very early age, preferably within the first few days of life, the results will be far better than those that are waited on for some reason. Approximately 90 per cent of the cases can be given very gratifying results with conservative or simple remedies. There are several types of treatment that can be carried out. One is the old, time-honored application of corrective casts, which consist of applying a small, lightweight boot cast from the toes up to the knees, molding the foot into as much of a corrected position as the circulation and the patient's comfort will tolerate. One must be cautious about applying such casts because of pressure irritation on the skin, and a slough that will give a permanent scar. The Kite method of applying casts is to put on a boot cast, molding the foot in the corrected position as best possible, and at the end of about a week's time, a window can be cut on the upper, outer surface of the forefoot and ankle and the foot can then be molded into a little more correction and a few turns of plaster will hold it in this position. In this fashion, at about weekly intervals, the cast can be modified to give a greater degree of correction. Others prefer to remove the entire cast and apply a new one each week. In the hands of experienced persons, this is an excellent method of treatment. It is impossible to state how long this type of correction must be carried out; however, it is always necessary to continue it until as near full correction as possible has been attained, and it must be maintained for a prolonged period of time.

Another corrective device is the use of the Denis-Browne splint, which is a small, leather-covered metal plate that is strapped to the foot with adhesive tape, being sure that it is not strapped too tightly or that it interferes with the circulation. Then, a small crossbar is applied in such a fashion that it attaches to the sole of each of these metal plates, and the feet can then be gradually rotated outward over a period of time until the correction desired is attained. This has the advantage that the child is constantly moving and kicking, and with each movement, the infant will stretch the affected parts a modest amount, and a very gratifying result can frequently be attained by this method. There is no one fixed method that will work satisfactorily in all cases. As I stated before, about 90 per cent of these youngsters will have a gratifying result, but about 10 per cent of them tend to defy the simple remedies. In these cases, some type of operative interference will be necessary at a later date. It is extremely important that these children have very prolonged observation and prolonged follow-up care, as there is a tendency for the foot to return to its previous deformed condition unless it is adequately followed. There is a "something" that has produced this club foot, and sometimes this same "something" continues to act after correction has been attained and unless it is maintained, the defect will recur.

The next disorder in frequency is that of a metatarsus varus. This is simply a toeing in of the forefoot. It can be classified as a minimal degree of club foot; however, instead of the foot being perfectly straight, the forefoot toes in, and very frequently the great toe will have a tendency to protrude out from the side of the foot, somewhat in the fashion that the thumb protrudes from the side of the hand, rather than being parallel to the rest of the toes. This condition also should have its treatment extremely early, and it consists of a very similar type of treatment as to the club foot, except that it is less severe, the time involved in the treatment is not as long, and the degree of correction can usually be expected to be greater than that of a club foot. Again, prolonged treatment is indicated.

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Congenital dislocation of the hips is an unusual abnormality, but over a period of time we see a fair number of such cases. For some strange reason the condition seems to be much more frequent in girls than in boys; in fact, it is unusual to see a congenital dislocation in a boy, whereas it is quite frequent to see this in a girl. Under ordinary circumstances, this disorder is not picked up until the child begins to walk, and then it is noted that she has somewhat of a waddling gait or has a peculiar gait on one side. Of course this can be present in one hip or in both hips. The early diagnosis is usually made by close observation and examination. The one test that most frequently will give the information that one is seeking in such a condition would be to flex the knees and hips to a right angle and then abduct the hips on the pelvis. By opening the legs widely in that fashion, one can see whether or not the infant's hips will abduct normally. Under ordinary circumstances, it is a simple matter with the hip in this position to abduct the hip at least 90 degrees, so that with a child flat on her back, the thighs will be flat on the examining table. Of course, there may be those who have less flexibility than this, but ordinarily this can be done. If there is the slightest question about the infant's condition, then of course x-ray pictures should be made. Needless to say, in early infancy it may be difficult to diagnose this from x-rays, as the epiphyses have not developed sufficiently that they can be seen on the film; however, the general position and alignment and relation of the upper shaft of the femur to the pelvis will give the diagnosis, or at least clue, and early treatment can be begun. Numerous types of treatment have been devised for treating congenital dislocations of the hips, but it is my experience that the frog leg cast has been the most satisfactory. In cases that are diagnosed quite early, the dislocation of the hips may be reduced without an anesthetic or without difficulty or undue strain on the structures about the hip, and then it can be maintained in the frog-leg position in such a fashion that the upper shaft of the femur, or rather the head of the femur, presses at a right angle to the pelvis from its lateral surface. In this fashion, the pressure of the head of the femur against the acetabulum will produce a deepening of the acetabulum and in time an adequate shelf develops over the head of the femur so that weightbearing can be satisfactory. In these little fellows, it is found that the underdeveloped acetabulum will be like a saucer; whereas a normal acetabulum will be like a cup, and the head of the femur will produce an indentation in the saucer, deepening it until it is cup-shaped. When this has developed, then of course weightbearing can be begun. Rather prolonged treatment is necessary in these children, and it should be explained to the families well in advance that a long, drawn-out affair is necessary. Again, in this condition, we find a few cases that seem to defy conservative treatment, and in them, surgery is indicated. I have recently seen a child with dislocation of both hips, and she had an extreme degree of generalized joint laxity. There are such cases in which the head of the femur is dislocated from its normal relation to the side of the pelvis to such a degree that the capsule of the joint is stretched a great deal, and will form somewhat of an hour-glass constriction between the acetabulum and the head of the femur, so that attempts to reduce the head of the femur into the acetabulum will not be satisfactory. In such cases, surgery is indicated, with a dissecting out of the hour-glass constriction between the head of the femur and the acetabulum so that it will be possible to place the two bones in normal relation.

These, I believe, are the chief congenital abnormalities that we see and are the most frequent ones. On each of these, early diagnosis and early treatment will greatly simplify the repair of such a disorder and will end with a far more satisfactory result than one in which delay of treatment has occurred.

Next will be the degenerative processes which we encounter. Under this heading, I will discuss the various types of epiphysitis, which we believe to be due to an interference with the normal blood supply to the epiphyses or apophyses of numerous locations in the body. These are chiefly in the lower extremities and in the spine. It is not at all infrequent in a boy or girl of early age, say five to eight years, to come in complaining of a limp and discomfort in the foot without known trauma or associated injury or illness. There will be slight soreness to manipulation of the foot, and x-ray will reveal an alteration in the tarsal navicular. This is a Kohler's disease, and it will be found that this bone will have an increased density, a whiteness of greater degree from that which is evident on the other bones of the forefoot on the x-ray. This bone may be fragmented or it may be quite thin. You will recall that the tarsal navicular is shaped somewhat like a small biscuit, and if its superior-inferior diameter is lessened, it may be as thin as a half-dollar. Appropriate protection of this foot over an adequate period of time with a metal arch support will usually give relief. It requires a very prolonged period of treatment, but if deformity of the foot can be prevented with using an adequate support on this bone to protect it during the period of revascularization of this bone, then I believe that a good foot can be anticipated. We have seen numerous cases of this, and under ordinary circumstances, a very good result can be anticipated.

Next in the foot is an apophysitis of the os calcis. You will recall that the growth center for the os calcis is on its posterior surface, and a lateral x-ray of a child's foot will usually show what appears to be a small, thin, separate portion of bone on its posterior surface in the region of the attachment of the tendo achillis. If the child comes in complaining of sore heels on the posterior surface, limps, and running, jumping, etc., produce aggravation of this and the x-ray reveals an increased density in the posterior apophysis of the os calcis or fragmentation of this, one can feel reasonably sure that an apophysitis is evident and he should be advised to avoid all facts that require force, speed or violence, as the tendo achillis attaches to this sensitive area and it would of course come into play in all active movements that the child would make and would perhaps irritate the area that is already having difficulty. Removal of the hard counter from the shoe is a very simple thing to do, and if this can be done for a prolonged period of time under ordinary circumstances, one can anticipate a return to normal of this sensitive area. Extending up the leg at a later date, or rather at a later age, one frequently finds in children from the age of eight to twelve, an area of tenderness over the tibial tubercle. This frequently comes on at the marble-playing age, when youngsters are playing on their knees on the ground or when they are playing football, and they will always associate this with some type of trauma. Actually it is doubtful if trauma plays any great part in the origin of the disorder, but the tenderness over the tibial tubercle may be quite acute. There will be increased local temperature, swelling, and running, jumping, riding a bicycle will all aggravate this disorder. A lateral x-ray of the tibial tubercle will usually reveal some fragmentation of this. You will recall that the normal epiphysis of the upper tibia on a lateral view extends across the entire upper tibial plateau and has a long, hook-like portion that extends downward on the front of the upper tibia to the tibial tubercle. Frequently it will be noted that this is a complete, separate fragment. It may have a change of density and the bony portions may be separated a greater degree from the shaft of the upper tibia than one would normally expect. Again, this disorder is one of an interference with blood supply, and prolonged rest of the part is indicated. Avoiding undue strain will usually give relief. It should be emphasized that these youngsters should avoid running, jumping, riding bicycles, etc., as the quadriceps attaches to this area through the patellar ligament, and anything that would irritate this region would aggravate the disorder. Adequate protection of this over a long period of time, and by that I mean anywhere from 12 to 36 months, would usually result in a very gratifying result and the disorder will be self-limited on that basis.

The next form of epiphysitis and by far the most serious one is that which we encounter in the hip. There will be a gradual onset of a limp in the affected hip without history of special trauma or irritation of the area, and the patient develops a limp, fretfulness, complaining of soreness in the afternoon after prolonged play. This usually comes on at from the age of seven to twelve. Examination in this particular condition will usually demonstrate a limitation of rotation and hyper-extension of the hip. There may be notable muscle spasm about the hip. This of course would lead one to make an x-ray, and it is always wise to make an x-ray of both hips. In that fashion, you can compare the unaltered hip with the sensitive one. It will be found that the capital epiphysis of the femur has an alteration in its density and contour and there may even be some fragmentation. In years gone by, this was felt to be a tuberculous disorder, but this proved to be an incorrect impression. As in the case of the other forms of epiphysitis, the treatment here again is rest and avoiding mistreatment of this capital epiphysis until it can go through an adequate period to develop into a strong, firm epiphysis. It is wise at the onset to tell these parents that this disorder will require months, or even years. I have treated these children from 18 to 60 months before an adequate result and adequate restoration of proper bone density developed. There have been numerous types of treatment advised, and there is a wide play in what is done for these. In some locations, the patients are hospitalized for a prolonged period of time. Traction is put on the extremity until all spasm has subsided, and until the hip can be freely moved throughout its full range of movement without inconvenience; then the patient is placed in a body cast to prevent use of the part, or in some instances, an extensive brace is applied somewhat similar to a Thomas splint so that the brace is longer than the leg and protrudes beyond the sole of the foot. The opposite shoe is built up in such a fashion as to be of equal length as the brace on the affected side. The child is then given crutches and allowed to walk. In this fashion, as he walks along, when he bears weight on his brace, there will be no support beneath the sole of the foot on the affected side and the ring about the hip region will support his weight on that side. My impression is that this is a rather cumbersome type of device, and I have followed the treatment devised by Dr. Frank Fort for many years. This consists of a very simple metal bar with a cuff at each end of it and a ring in the middle. This is strapped about the leg, with one cuff below the knee and the other just above the ankle. A strap is then placed about the shoulders with a snap on it which snaps into the metal bar in its mid-portion. This is so adjusted that the knee is held at a right angle. The child is then given crutches and allowed to walk as much as he may desire. This permits full, free range of movement in the affected hip, yet prevents weightbearing. When he goes to school he can unsnap the buckle at the mid-calf region, allowing him to sit down and move the extremity about freely. This prevents weightbearing, and I believe is a more physiological type of treatment than the extensive brace with two crutches. Most of these children will get a gradual restoration of the blood supply in the head of the femur if this is protected an adequate period of time, and a good result can ordinarily be anticipated. However in some instances, there will be some distortion of the head of the femur and some rheumatic discomfort may occur in later life. I believe that this is the most practicable and economical means by which to treat such cases. Again, the earlier the treatment is begun, the better, and needless to say, when the diagnosis is made, it should be explained to the family that the hip will gradually grow worse for some time before it will start getting better, even under treatment, as there will be a greater degree of fragmentation and alteration in the epiphysis after treatment is begun before the pendulum swings in the opposite direction toward healing. It is frequently very difficult to get the cooperation of the children or parents, but this is definitely necessary to obtain the result desired.

The next in frequency in the epiphysitis field is that of the spine. This is frequently spoken of as an adolescent epiphysitis. It usually comes on at about that age. The patient will gradually develop a round-shouldered posture and will have a prominence of the normal dorsal curve in the spine, producing a very poor posture with the scaphoid chest and a prominent abdomen. Here again, protection of the back is indicated. It has been my experience that these youngsters usually come in after this disorder has gone on for a rather prolonged period of time, and the x-ray will usually show some irregularity from the superior and inferior, or perhaps anterior surface of the vertebral bodies, chiefly in the low dorsal area. Here again protection of the affected part is indicated. It has been my routine in such cases to carry out three types of treatment. One is a bracing of the back, making an effort to produce a back bend of the spine in an effort to obtain a more erect position; number two, place them on a non-sagging bed; and the third is to give them spinal hyper-extension exercises in an effort to strengthen the paravertebral muscles and produce strength so as to place the weight on the posterior portion of the vertebrae instead of on the anterior portion which is soft and faulty. This again requires treatment over a very prolonged period of time. One must again emphasize the importance of patience as this is a matter of growth and it must be followed for a prolonged period of time. This is more frequent in boys than in girls, and again, I will remind you that this is usually at about adolescence. With early diagnosis and adequate treatment, one can usually have a gratifying posture with a strong, straight spine. Of course the result depends on how early the diagnosis is made and how cooperative the patient may be.

Last, we will come to what can be called the developmental abnormalities, or they may even be considered metabolic abnormalities by some people. These consist of such disorders as flat foot, pigeon toe, knock knee, bow leg, and scoliosis. In discussing the condition of the feet, I find that practically all infants give the impression of being flatfooted. Actually these little fellows are not flatfooted, but they have a rather even distribution of subcutaneous fat over the entire body and a thick pad of this beneath the sole of the foot is present, and on standing, the entire bottom of the foot touches the floor. It takes some time and use of the foot before the subcutaneous fat is absorbed because of pressure from use, and it takes a little while for an actual arch to develop. Unless there is a known defect in the feet, it is my impression that it is very definitely wise to allow infants to learn to walk without any type of constricting dressing on the foot. I base on the same premise in which one does not place a collar on an infant because he or she cannot hold up the head; nor does one apply any type of dressing about the neck when he or she cannot sit up. We simply wait until the individual has matured sufficiently that the muscles involved in these actions are adequately developed that they will hold the body in its correct position and then the child, when reaching that degree of maturity, will go ahead and sit up or hold up the head and do this unassisted. It is my experience that most people have the distorted idea that an ordinary shoe gives the foot support rather than giving it constriction and limiting its function. If the child is allowed to learn to walk without external artificial support, I believe that the progress of the feet will be better than being placed in some hard-soled shoe with a tight lacing about the ankle that will actually impede function rather than assist.

Next, I find that a great deal of emphasis is placed on a child having a flat foot when in reality the child does not have a defect of this type at all. There is simply a generalized joint laxity evident which permits this infant to have greater joint play than is evident in an adult, and the mere fact that these little fellows have freer movement in their joints than their older brothers or sisters will lead the parent to feel that the child has a definite handicap. A flat foot should certainly be differentiated from a case of generalized joint laxity. In most instances where there is a flat foot type of deformity, there will also be an association of a knock knee with this. Treatment of the flat foot is also the treatment of the knock knee. Personally, I do not desire a shoe with an arch support for this type of condition, as the arch support actually raises the arch and the muscles which are supposed to do this particular job are then thrown out of play, and when the arch support is removed, these muscles are somewhat atrophic, having depended on the arch for a prolonged period of time and this allows the foot to go down into a flat foot position. I personally prefer to apply some type of shoe or device that will cause the child to bear his or her weight on the lateral margin of the foot and produce a toeing in, in walking. This will cause the infant gradually, as time passes, to correct the knock knee and raise the arch. This can be done by placing appropriate wedges in the heels of the shoes on the inner side, or by one of the shoes built for this purpose, such as a Tarso-supinator. Again, this is a condition of growth that will require a very prolonged period of time and one pair of corrective shoes is worthless. They must be used over a very prolonged period of time. Again one must combat the family in some of these cases because after all, this type of shoe may not be attractive and the mothers so frequently condemn it for that reason. Of course, one must rely on a long-time treatment, knowing that at a future date, a greater degree of perfection will be present if this is done. The treatment of flat foot and knock knee are almost identical, as the correction of one will usually correct the other.

Bowlegs, another disorder that we frequently encounter, in most instances is due to inadequate absorption of vitamin D. Most of the youngsters whom I see with it have been taking vitamin D consistently, yet there will be a few of these who do not absorb and use this preparation in the quantities given and it will be necessary to give a much higher dosage. For this purpose I prescribe one of the vitamin D concentrates and add it to the regular mixed vitamin ration that is usually given. After a prolonged period of time, this disorder will ordinarily correct itself. It is true that we occasionally run into a case of chondritis of the epiphyses in which this is another problem entirely and the defect can only be ruled out by the use of x-ray. The treatment of the two, of course, would be different, but the latter is an unusual finding and is not one that we would feel justified in spending much time on at this particular moment.

The next problem is that of a slipping of the upper femoral epiphysis. It is a little hard to state whether this should be placed in the metabolic disorders or whether it should be placed in the acquired ones. However, I am placing it here for discussion. This disorder was once thought to be associated with an endocrine imbalance and was found particularly in the obese, feminine type of boy at about the age of ten to fourteen. However, this disorder can come in any type of individual. One does not have to be the Frohlich type of patient. There is a weakening along the epiphyseal plate, and there will be a gradual slipping of the epiphysis on the upper end of the femur backward and downward. Both anteroposterior and proper lateral x-rays of the hip are necessary to rule this disorder out, as frequently there will be only a backward slipping of the epiphysis and a single front-to-back x-ray will not give a sufficient clue to give an accurate diagnosis. Restoration of the epiphysis to its normal relation to the upper end of the neck is important, and it should then be held there by some type of internal fixation. In cases where the disorder is of long standing, another type of corrective surgery is indicated. The beginning symptoms of a slipping of the epiphysis at the hip are very similar to those encountered in Perthes disease, that is, an epiphysitis of the upper femur, and only x-ray can rule this out; however, it would be in a later age group than the epiphysitis is seen. An early diagnosis in such cases, with appropriate internal fixation, can give a very gratifying result with practically a symptom-free hip; whereas if the disorder is allowed to be of longstanding and has sufficient gradual bony change in the neck and head of the femur, then only patch work can do the job and the degree of perfection in the case will be far less, and the surgery will certainly be much more extensive. However, even in the late cases, the hip should be operated to prevent a rather marked degree of traumatic arthritis in the future.

Last, I will take up scoliosis. This under ordinary circumstances has three major origins. First, a hemivertebra, one or more, that has been present since birth, and the curvature is ordinarily not noted until the child is several years of age. In such cases, there is not a great deal that can be offered. They usually do not complain of their backs in the future, as they accommodate for this defect and get along well. The next group are those that have had polio, and the treatment here is first, that of the polio and later that of the spine. The third and most frequent group is the idiopathic scoliosis that is found most frequently in girls. It comes on very gradually without known cause at about the age of adolescence. Most of these patients will be brought in to you by their mothers, who state that in attempting to adjust a dress for proper fitting, they have difficulty in making it fit well. They then note that the child has a prominence of one hip or a distortion of the spine. X-ray will make and confirm this diagnosis, and early treatment if begun will frequently minimize this and bracing or surgery may not be needed. Again, these patients should be given appropriate exercises to strengthen the muscles, particularly on the convex of the spine. A non-sagging bed should be used and in many instances appropriate bracing for this particular case is indicated. We usually devise the brace in keeping with that particular case and no set form of bracing can be prescribed in advance. Some of these will continue to increase in severity in spite of our best efforts. Some of these youngsters will require years of treatment and then will eventually require rather extensive spinal fusion.

In the above discussion, I am sure that I have only touched on some of the highlights of this type of disorder, but I hope I have clarified a few points in reference to this. I cannot emphasize too much the importance of early recognition and early treatment of any of these disorders regardless of whether it is congenital, acquired, or degenerative, as the eventual end result will be greatly improved by early treatment.

DISCUSSION

Dr. L. L. McDougal (Tupelo)—Dr. Blake has presented a most excellent discussion of the common and many of the uncommon orthopedic problems of childhood. I feel that the pediatricians and general practitioners should be on the alert to find these defects early as simple exercises and the stretching of muscles will often be corrective and save the application of casts, appliances, or even later surgical procedures. Anomalies from intrauterine position are seen daily by a close observer. Many anomalies are missed because the doctor is too busy to remove the clothes and shoes for a careful examination. This certainly should be done on the first office visit.

I feel very strongly that there should be a very close cooperation between the orthopedists and pediatricians in the care of these problems. The child will do better if the body is examined and treated and not just the skeletal system alone.

Each year I appreciate more what the orthopedist does for children. The Crippled Children's Service is doing a wonderful job in this state.

Until very recently the spastic (cerebral palsy) child has been very neglected. About two-thirds of these children have a normal intelligence and with proper care can be made useful citizens. Fortunately there are now many schools interested in the mental and physical care of these children. These children should not only be followed closely by the orthopedist and medical man but often by the neurologist, ophthalmologist and other specialists.

Proper shoes for young children in the rapid-growing period is very important until a baby starts standing on his feet or taking a few steps usually at 9 to 12 months of age, having a shoe large enough to allow proper growth. Two or more of the 5- and 10-cent stores carry very good baby shoes for the above age. After a baby starts standing or taking a few steps I usually recommend the self-starter shoe until they are 15 to 18 months old. Infants who are heavier than average for their age I recommend a change at an earlier age. At 15 to 18 months I usually recommend the Edwards shoe for normal children. If they are hefty I start them on Properbilts at this age. This is a much heavier shoe. A small or thin girl has difficulty in handling these shoes. Properbilt makes a stock shoe which will take care of a mild internal rotation or mild flat feet. A good cobbler can put a 1/8- to 3/16-inch rise on the inside or outside of any of these shoes.

Properbilt, Weatherbird and several other shoe companies make a very good stock shoe with a wedge heel which is wonderful for children especially with internal rotation. Most children under 3 or 4 years do better with high shoes for playing. There should be one or two periods each day that the child is allowed to go barefooted to exercise the muscles of the feet.

The most common orthopedic problems we see in children are anomalies of the feet. Many of the mild cases can be handled by the medical men.

Clubfoot (Talipes equinovarus) is a severe congenital deformity and I think should be followed by an orthopedist at the earliest possible age.

The pronated foot or internal rotation is the most common deformity of the feet. Since the longitudinal arch is normal this can usually be corrected by 1/8- to 3/16-inch wedge on the inside of the heel plus exercises of rising on the toes and slowly rolling down the outer border of the feet until the heel reaches the floor.

Weak feet. The longitudinal arch is relaxed (other name applied is flat foot). This may be aided by 1/8-inch wedge on the inner heel and 1/8-inch outer shoe.

Severe weak feet (Talipes calcaneovalgus) Have mother to stretch feet down each time the diapers are changed. Wedges on inner soles and heels are helpful. In more severe cases aluminum arch supports are required.

Cavus foot (high arch). Metatarsal pads and stretching exercises are often valuable in the early treatment.

Hammer toe. Stretching is usually of no avail and often after ten years of age surgery is indicated.

Overlapping. Stretching and splints are often of no avail and amputation gives the only relief.

Hallux varus or medial deviation of the great toe is usually corrected by wearing shoes.

Subluxated fifth toe. Remove contraction.

Web toes. Correction depends on impairment of walking, pain or cosmetic effect.

Accessory toes usually require removing.

Callosities (corns). Corns develop on children usually on the first and fifth toes, usually due to too short or too narrow shoes. This is usually corrected by proper fitting of shoes.

Diaphoresis. Sweating of the feet is usually due to unusual activity and high metabolism. Boric acid and salycilic acid powders are helpful (P. D. & Co.) comfort powder.

Pigeon toe. If exercise does not correct this, a wedge should be worn in outer side of shoe. Children with one anomaly may have others, as congenital heart, web toes, cataracts, etc.

With all of the drug companies selling vitamins pediatricians still see a large number of infants and children with rickets. A very small number and usually mild cases are due to the fact that the child did not absorb the vitamin D but a very large majority are due to the mother not giving the vitamins. Many mothers say, "My doctor did not tell me to give it to the baby." Some say, "He gave me a sample but did not tell me to get more." Some mothers are too lazy or irresponsible to give the vitamins. I feel that it is the doctor's responsibility to impress on the mother the importance of vitamin D to the growth and development of her baby. When I have a baby with an irresponsible mother or a baby, who apparently has not absorbed his vitamins, I give two or three hundred thousand units of vitamin D intramuscularly and give 15 to 20 grains of calcium by mouth. Many of these babies are on the verge of tetany and to prevent this there should be an adequate supply of calcium.

Children with persistent limps, abnormal positions of limbs, abnormal gaits or persistent pains, should have complete studies including x-rays for the detection of any early bone changes.

Simple fractures without any or much displacement can be cared for by many doctors but certainly the more severe ones should be treated by the orthopedist. This may save the child a deformity and the doctor a lawsuit.

Fortunately, due to good milk supplies and better hygiene, tuberculosis of the bone has become very rare.

With the advent of sulfa drugs and antibiotics, pyogenic infections of the bone do not present such a serious or prolonged problem.

Bladder Neck Obstruction in Children*

JULIAN WIENER, M.D.
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As THIS LESION is too often overlooked, the true incidence of bladder neck obstruction in children will never be known. It is certainly more common than is generally realized. The type of obstruction considered here does not include neurogenic bladders associated with spina bifida and other disorders. Obstruction may be due to prostatic enlargement, median bars, abnormalities of the veru, contracture of the bladder neck, hypertrophy of the interureteric ridge, or urethral valves. It is generally considered that the presence of such valves has been overemphasized in the past. Mucosal folds might easily be mistaken for valves when viewed through an infant cystoscope. Vesical neck contracture is probably the most common type of obstruction, although the etiology of this is obscure. Actually the degree of obstruction is not as great as the secondary changes would lead one to suspect. These obstructions are often present at birth, and may be noted in children of any age. There are differences of opinion concerning the sex incidence. Emmett[1] reported obstruction more frequent in males in the ratio of 4 to 1, while Howard[2] recorded a greater incidence in girls.

The presenting symptoms may be the usual signs of vesical obstruction such as frequency, urgency, dribbling, straining, etc., or there may be only minimal symptoms. Too often, these children are regarded as behavior problems or thought to be slow in toilet training. The differential diagnosis must be considered in any child with unusual or persistent urinary symptoms. Lich[3] recommends a complete urological examination in any child with intermittent or continuous pyuria, residual urine, unexplained gastrointestinal symptoms, or an unexplained lower abdominal mass. To these indications must be added unexplained fevers and recurrent urinary symptoms, including nocturnal enuresis and diurnal incontinence in older children.

Diagnosis is usually not difficult when one is aware of the possibility. Pyuria is often the presenting symptom. Estimation of residual urine may be different in the younger children. Some authors[2,4] suggest instillation of 30cc. of sterile mineral oil into the bladder. The presence of any oil in a catheterized specimen the following day indicates some residual is present. Intravenous pyelograms and retrograde cystograms are the most important diagnostic aids. These may be normal, but too often show dilatation. In each case cystoscopy is advised, as damage to the upper urinary tract occurs early and progresses rapidly. This may show any of the types of obstruction, or may even reveal no abnormalities. It is emphasized that the location rather than the degree of obstruction accounts for the seriousness of this disease. Retrograde pyelograms are rarely indicated. Urine cultures with sensitivity studies should be obtained in all cases with secondary infection.

Treatment depends somewhat on the degree of secondary changes. Urinary infections are treated with the appropriate drug. The cases found early may respond to urethral dilations. Howard[2] reports good results in 77.78 per cent of 63 children so treated. He does not state his criteria for selecting patients in this group, nor does he give the frequency or extent of treatments. Those who are further advanced, and those who do not respond to dilatation require surgery. Operation is definitely indicated with any degree of reflux or dilatation of the upper tract. Transurethral resections of obstructing tissue may be performed[1,2], but due to the tiny instruments required and the small margin of safety, open surgery is the procedure of choice in most cases[3,4,5]. Results are almost uniformly good.

When open surgery is done, a retropubic approach is utilized. The bladder is exposed through a vertical or transverse skin incision. A vertical incision is then made through the posterior urethra and bladder neck. Obstructing tissue is excised under direct vision. It is important to carefully palpate the region of the bladder neck, as a fibrous bar may be felt when it is believed that all of the obstruction has been removed. Hemostasis is obtained and the wound edges are closed transversally with interrupted sutures. The bladder is closed after an indwelling urethral catheter has been inserted. Suprapubic bladder drainage may be used, depending on the degree of upper tract dilatation. The anterior bladder wall can be closed transversally if the bladder neck is narrowed. A prevesical drain is left in place. The catheters are removed in a week or more, again depending on the decompensation of the ureters and kidneys. This type of procedure seems to be largely replacing transurethral resection.

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*Presented at Staff meeting of St. Dominic's Hospital September 14, 1954.

Three cases of bladder neck obstruction treated by open surgery are presented.

CASE I (KB)

This girl was seen in August 1953 at age 6 years. At age 3 the child had been treated in Minnesota for a low-grade fever and pyuria. Shortly after that the family moved to North Carolina where the child was kept in bed for six weeks with the diagnosis of "Rheumatic Fever." The mother states that this diagnosis was made because of the low fever, and that no other positive findings were noted. At age 5 the family moved to Florida where the child was first seen by a urologist. Cystoscopy and pyelograms were made and reported as normal. However, urethral dilatations were carried out for several months with no improvement. Trans-urethral resection of the bladder neck was advised, but refused by the parents. The child had continued to run some fever and there had been a foul odor to the urine. No history of nocturia, frequency or burning was given. The child had not been a bed-wetter. She was extremely nervous and had some school difficulties.

General physical examination was normal. A residual urine of 120 cc. was obtained. This was loaded with pus cells, and bacilli were noted on the stain. The child was hospitalized. Intravenous pyelograms appeared essentially normal. Cystoscopy was done under anesthesia, and showed fine trabeculation of the bladder with an almost vertical angle between the trigone and urethra. The bladder neck did not seem especially small. A cystogram showed reflux on both sides. An open resection of the bladder neck was done Sept. 11, 1953.

The child has been followed post-operatively and has done quite well. The amount of residual urine on various examinations has been from 0 to 30 cc. She has had no more fever, and the parents have noted no odor to the urine. Some pyuria has been present. The parents state that the child has done much better in school and seems less nervous than previously. It is believed that the pyuria is due to the decompensated upper tract, which will take longer to return to normal. Cystograms will be done at a later date. These have been advised, but the parents are reluctant to have further studies because she now has no difficulties.

CASE II (CT)

This patient was seen in March 1954 at age 4½ years. The complaint was dribbling of urine, but it was difficult to get a definite history whether this was frequency or actual dribbling. In either case the child did have nocturnal and diurnal enuresis. Various attempts at bladder training had not been successful. The child stated that she could tell when the bladder was full, but could not wait to reach the bathroom before voiding. There was some behavior problem with this child, and she had been under the care of a pediatrician. Prior to this he had regarded the case as strictly a behavior problem, but since the symptoms were becoming worse desired further studies. Physical examination was essentially normal. A residual urine was not obtained pre-operatively, but about 75 cc. of hazy urine was obtained in the office on catheterization. This showed many pus cells, and the stain was loaded with bacilli.

The child was hospitalized where intravenous pyelograms showed prompt excretion on both sides. There was some dilatation of the left upper ureter. Cystoscopy revealed a narrowed bladder neck with mild trabeculation of the dome of the bladder. Both ureteral orifices were dilated. A cystogram showed reflux on the left. On March 15, 1954, a section of the bladder neck was removed by open surgery. The child has continued to have pyuria post-operatively. She has shown definite improvement in her diurnal enuresis, but occasionally wets herself. The bed-wotting stopped for awhile, but she is now again wetting the bed one to three times nightly. There has been no residual urine. This case has not been followed long enough to finally evaluate the operative result, and unfortunately, is complicated by the behavior problem.

Cystograms to recheck the reflux will be advised at a later date.

CASE III (BB)

This 6-year-old female was seen in the office in late April of this year. Since the age of 1 year she has been having recurrent fevers to 105 degrees, with pyuria and anemia. The child has been seen by at least three other urologists, but none in the past few years. She had been advised to return for follow-up studies, but had never done so. Urethral dilatations had been carried out by her local physician. These would give temporary improvement, but the symptoms would always return. She had been taking urinary antiseptics almost all of her life. There was no history of bed-wetting, dribbling, or frequency. She had been very nervous all of her life and had had a poor appetite. Physical examination was essentially normal. The urine showed 3-plus albumin and a few pus cells. Many bacilli were seen on the stained smear.

The child was hospitalized. Intravenous pyelograms showed prompt excretion on both sides with some dilatation on the left. Cystoscopy revealed definite narrowing of the bladder neck with considerable edema in this area. There was mild trabeculation at the dome of the bladder and the left ureteral orifice was dilated. Cystograms revealed reflux on the left. Surgery was carried out on May 4, 1954 and a section of the bladder neck was excised. Post-operative course was uneventful. The child has been followed in the office since surgery. According to the grandmother the child has been less nervous than any time of her life and her general health seems better. She has had no fever since leaving the hospital. Good urinary control is present. Urinalyses revealed no pus cells. It is still too early to evaluate final results of this case and she will be followed and cystograms advised at a later date.

All of these cases must be followed longer before they can be finally evaluated. They are presented as fairly typical examples of this condition in children.

SUMMARY

Bladder neck obstruction is more common than is generally recognized. Symptoms may vary, and are no indication of the degree of obstruction. Diagnosis is not difficult when the condition is

kept in mind. Cases found early frequently respond to urethral dilatations. Surgery is often indicated, and it is believed that exposure through a modified retropubic approach is the procedure of choice.

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Medical Ethics*

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The essayist knows that medical ethics are practiced better in the Mississippi Delta than anywhere else, but as the Boy Scout renews his oath or the Christian reads his favorite scripture, so it is good to repeat truths of medical ethics. When this study was made it was a surprise to find that the two last texts on medical ethics were written by clergymen. Where is the heritage of Dr. Richard Cabot and Sir William Osler? So let us re-examine the principles of medical ethics. Much is said about ethics or the lack of ethics and the breakdown of the moral fibre and integrity of our nation in late years. For myself though, I am reminded of what the English poet Coleridge said of the old German whom he met at Frankfort, Germany: "That he took off his hat with profound respect whenever he ventured to speak of himself." So when I venture to speak of doctors and their ethics, I take off my hat with profound respect.

Ethics is the *science of moral duty*; the highest science of all. In the modern scientific age in which we live, it is said that the ethics of the medical profession have declined. Some say anything which is old is good and anything new is bad. Such people we call conservatives, or worse. Some say anything new is good and anything which is old is bad. Such people we call radicals, or worse. Yet the truth of life is not found in ethics of these extremes. So are the shifting tides of the medical world. But landmarks of truth are to be found. The American Patriot warned us: "Remove not the ancient landmarks which our fathers have set." Thus it is today. There are landmarks of truth and ethics which have been set by steadfast lives of devoted medical men in everyday work; these stand as the steadying point of our profession in a changing world.

The one thing which is certain in life is change itself. In the remarkable changes in the Scientific Age in which we live, the thought has prevailed that spiritual values have declined. The word "ethics" itself has an old fashioned sound. The Hebrew boy, Abie, did not believe in it. He got his half dollar and changed it into quarters. At different places he changed the quarters into dimes; then dimes to nickels; thence back and forth. So finally the man inquired, "What are you doing, Abie?" To which Abie replied, "Sooner or later somebody is going to make a mistake, and it ain't going to be me."

The ethics of the doctor has many aspects. In the split second times in which we practice traditional medicine, bickering of small-town physicians could not be the trend, as every day adds new responsibility for cooperation and teamwork for survival of our life itself. The oldest medical society in the Western Hemisphere recognizes these facts. The medical society of New Jersey established in 1766, distributed plaques to remind all its members "that the physician is therefore pledged to uphold the high standard of his chosen profession, hence fees within the patient's ability to pay, dependability to render needed services, participation in community activities with his fellow citizens are constantly his special concern."

Throughout our history there have been leaders in our field who have held out that medicine's principal object is to render service to humanity. Like the minister, the physician has a moral duty "to go the second mile and give medical care to the rich and needy, to the friend and foe."

More than 50 years ago Sir William Osler counseled "Let the doctor heed to his ethics and his reputation will take care of itself." These words mean far more today than they did in Osler's time, for on every hand the medical profession is under fire by those who would destroy its very roots. Insidious forces are on the move in legislative halls, press and public sounding boards to spread the gospel of socialism, and communism, and to preach the death knell of the medical profession, but as Mark Twain expressed it; that the report of his death had been greatly exaggerated so the radical and socialist have exaggerated the condition of the health of the American citizen and the shortcomings of the American doctor. Although revitalization of the profession is always needed, the doctor stands today as a unique factor in every community in our nation so far as the social, economic and spiritual life of America is concerned. We must reeducate ourselves as expressed in the preamble of our medical association; "that it is dedicated to the promotion of the science and art of medicine and to the betterment of public health."

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*Presented before the Delta Medical Society, April 14, 1954.

Then further, one of our most solemn obligations is to promote our medical societies. To keep them vigorous and strong, is one of the prime responsibilities of medical societies and we must have proper grievance committees to protect patients and to recommend a proper disciplinary action, as our code says: "A physician should expose without fear of favor, incompetent or corrupt, dishonest or unethical conduct on the part of the members of the profession." Concerted efforts by the doctors will eliminate the distorted picture of the medical profession which medicine's enemies have labored so long to create. Concerted efforts by all will restore to the public the proper picture of medicine and will refocus the picture to reveal the doctor as a man of dedicated ideals, steeped in the American way of life, and accomplishing his ideals by assistance to suffering mankind.

A report of the joint committee on hospital-physician relationship of the Board of Trustees of the American Medical Association discussed the practical problems of ethics of today's doctor. There is the doctor's relationship toward the nurse, an old and valued relationship. And now the technician, dieticians and other trained workers; again the hospital administrators and his staff, the pharmacist, also throughout the state there are many midwives and practical nurses; all of these must be considered. Thus there is an increase in size and complexity of cooperated efforts for medical care and a corresponding responsibility with a problem of public relations and ethics before the practitioner on every hand. This framework of professional, technical and mechanical labor and physical equipment has improved the quality of medical care. But such an organization demands understanding and appreciation and a pulling together for the common good and to establish a concerted action there must be a free flow of information and ideas between all the workers mentioned herein.

The ethical basis of medical practice as a scholastic research has to an extent been neglected. The latest work was written by Willard L. Sperry, who strangely enough is dean of the Harvard Divinity School.

Dean Sperry pointed out "that of all professional groups that of medicine has, on the whole, codified its ethics more rigorously than has any other of the kindred professions." This treatise considers such topics as the general relations of science and ethics and the basic distinction between a profession and a trade.

Again Dean Sperry observed that the Hippocratic Oath has no parallel in the history of morals. The doctor has developed from these beginnings a much stricter code than other professions. To quote again from Dean Sperry, "Doctors are not supposed to advertise. The most they may do is to hang out a shingle over an office door. They are not supposed to take the initiative in soliciting off the street. They must safeguard references to themselves in the papers. They may not tacitly consent to a celebration of temporary medicine, but remain unequivocal and unbendable on such propositions."

Recently I observed in a current weekly publication the cover page with glaring capitalized letters of an article entitled "Money Hungry Doctors." Evil days have fallen upon us; and today we stand at the cross roads as to whether the American people retain their old trust in the doctor or whether we are forced into a new day of socialism or communism in medicine. Yet the answer to this struggle is only found in our professional strength and our auxiliaries. It is an old adage that one must first put his own house in order. So today to meet our challenge the medical profession must make every effort first to renew its own strength. The doctor, the technician, the nurse, the practitioner, the specialist, all must return to the first ideals of medicine and work together in loyalty and sacrifice. All now depends upon the medical team as the present day doctor cannot stand alone in the scientific age of this century. Like the legendary phoenix which arose from its dead ashes to become a more beautiful birds, medicine must rise over criticism, charges and strife to be once more an even firmer and vital factor of our American democracy. We must retain our sense of value. Charles McFadden in his text Medical Ethics said "Every doctor and nurse ought to have two things—a sense of humor and an incision— sense of humor in order that he might spread joy and gladness and incision in order that he might have an experiential understanding and appreciation of pain."

The north star of medical ethics is *truth*—truth to the facts, truth to oneself, truth to the patient, SOBER, HONEST TRUTH.

The profession cannot use the practitioner who operates with his tongue. With truth there goes reserve—reserve as to diagnosis, reserve as to the patient and the confidential relationship of doctor and patient. With truth and reserve, there goes respect—respect for the fellow physician. Dr. Oliver Wendell Holmes paraphrased to say: "Thou shalt not covet thy neighbor's patient."

This discussion concerns only the broad fields of ethics and not the details. Of course, we make mistakes and fall short of ideals. Chauncey Depew in answer to criticism spoke of the fact that "there are spots on the sun." Commercialism of medicine is a charge constantly hurled against us. They say the doctors have operated so much that a good definition of a doctor is a man who still has his tonsils, adenoids and appendix.

There was the irate patient who demanded an itemized statement of the surgeon. The bill was sent as follows:

For cutting $7.50. For knowing when, where and how-$192.50.

Rastus was discharged for stealing and he wanted his employer to give him a certificate for honesty, energy and ability. "I can give a certificate for energy and ability, but what about honesty?" Rastus said, "Write that Rastus is as honest as his instincts will let him be."

But in the long haul home of the country doctor's life, we feel the need for the VERITY which dose not change. We must daily acknowledge the PURPOSE AND VERITY of the Head Physician of this vast planetary ambulance or traveling hospital known as a world.

Yes, of late years sharp criticism has been directed against the medical profession, much of which is unjustified. There is an answer here in this poem.

It's true that Alexander drank
And was at times a sot, a tank,
But set this also down, with candor;
It wasn't drink made Alexander!
Ceasar had weaknesses galore,
He reveled and he drank and swore;
He had his foibles such as there are,
But weaknesses did not make him Caesar;
Napoleon was given to
Doing some things he shouldn't do;
These were his weak and phony part --
They didn't make him Bonaparte.

So let "debunkers" do their worst,
When all their stories are rehearsed
They only serve to prove afresh,
The Spirit's mightier than the Flesh!

The famous painter Whistler was sued about a painting, and in the trial court he was asked how long it took him to paint the picture—Whistler's answer was that "it took me all of my life." So it takes all of our lives and many lives before us to paint the picture of the doctor and the ethics which he has upheld.

In our generation the unions, pressure groups and others have made legislative demands of us and have lambasted our leaders and our weaknesses have been magnified one hundredfold. True, we have faults and have made, and make, mistakes. The test of our worth is the true purpose and spirit of the American doctor. Of all professions, he has been thoroughbred and true; True to American ideals in his training, schools, and throughout all his organizations and associations. So:

We come into this world all naked and bare;
We go through this world with trouble and care;
We go from this world to we know not where;
But if We're throughbreds here, we'll be thoroughbreds there.

The spirit of the American doctor from days of the Revolution to the present has been that of the thoroughbred. Doctors of the Mississippi Delta have honored the title and worn it as a badge of service. Here is the tribute which Lord Byron gave to the doctor: Medicine is the only profession that labors incessantly to destroy the reason for its own existence."

In conclusion my advice is for each man to stick to his trade; let the mason stick to the trowel, the carpenter to his plane, the lawyer to his brief, and the doctor to his pills and not go off lecturing.

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GALL BLADDER SURGERY—(AVENT)—

(Continued from page 282)

the patient's condition is satisfactory, the T tube can be removed. In patients with longstanding infection and marked dilatation of the common and hepatic ducts, I believe that additional drainage of the biliary system is of value, and these patients are sent home at the end of two and a half or three weeks with the T tube in place and left there for two or three months. During this time tubes can be clamped off during the day and allowed to drain in a bottle at the edge of the bed during the night. At removal of the T the biliary fistula will invariably close and drainage cease in a few days.

After operation, these patients are given adequate fluids, sufficient narcotics for relief of discomfort and diet as soon as tolerated. It is highly important that these patients be advised concerning their diet and their course be observed from time to time. Many of them have associated digestive difficulties, such as a functional colon, constipation and achlorhydria, which must be corrected if best possible end results are to be obtained.

IMMUNIZATIONS—(SMITH)—

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MEDICAL STATISTICS SHOW RECORD INCREASE

Today's physician population has now reached approximately 220,100. The record graduation figures were released in the fifty-fourth annual report on medical education in the United States by the American Medical Association's Council on Medical Education and Hospitals.

Highlights of the report:

°Enrollment of 28,227 is largest number of medical students in history of U.S.

°Freshman class enrollment of 7,449 also is a record.

°More than 76 million dollars were spent during 1953-1954 for new facilities, remodeling or completion of buildings for medical instruction.

°Budgets for medical schools during 1954-1955 total more than 143 million dollars.

°21,328 physicians did volunteer teaching without pay during the year.

°Ten new four-year schools are in construction or planning stages and will be in operation within the next few years.

The ten new four-year medical schools will be at the Universities of California, Mississippi, Miami, Missouri, Florida, West Virginia, Kentucky, North Dakota and Yeshiva University of New York and Seton Hall University. In addition, three other medical schools are being considered.

Recent Trends in Treatment of Thyroid Diseases

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When Astwood introduced a new anti-thyroid drug[1], there was great speculation and considerable controversy as to whether or not the treatment of thyrotoxicosis would continue to be surgical. There is no question that since the advent of these drugs, less and less toxic thyroids are coming to surgery. And, this is as it should be. There is still controversy, however, as to whether or not there is still a place for surgery in the treatment of thyrotoxicosis.

The author wishes to review some of the more recent developments in the treatment of thyroid diseases and to express his beliefs as to how various conditions of the thyroid should be treated.

For the sake of clarity, all conditions of the thyroid should be divided into two main groups, namely, nodular diseases and diffuse diseases. All diseases of the thyroid gland can be placed in either or both of these two main headings. They may be listed as to the following table:

THYROID DISEASES

I. Nodular: 1) single adenoma, 2) multiple adenoma, 3) nodular non-toxic goiter, 4) nodular toxic goiter, 5) inflammatory lesions, 6) malignancies.

II. Diffuse: 1) inflammatory, 2) diffuse toxic goiter - Graves' disease, 3) malignancies.

From the above table, we can see that the nodular diseases are primarily surgical diseases and the diffuse conditions are primarily medical. Of course, there are exceptions to both.

NODULAR DISEASES

Given a patient with a nodular enlargement of the thyroid gland, it must be placed into one of the above categories. In times past, one had to rely primarily upon the appearance and feel with few laboratory procedures as an aid and upon a biopsy of the lesion to arrive at a correct diagnosis. There was much confusion and doubt in the minds of both the patient and the physician. Today, however, after the summation of many, many cases and with the aid of newer means of study, these conditions are fairly well understood and can, for the most part, be treated adequately.

To reiterate, nodular conditions of the thyroid should be treated surgically, but not without thorough and complete study. It has been reported and generally accepted that from 15 to 24 per cent of all nodules within the thyroid are malignant[2]—a figure high enough to justify surgical excision of all single nodules, but not without thorough study.

Single thyroid nodules can be classified as to their histological differentiation or those with or without evidence of increased activity[3]. A nodule may appear in the thyroid gland which will show considerable hyperactivity. The remaining gland will be found to be inactive. It may also appear hyperplastic and show no activity. This condition can be determined by two means. First, the gland may be removed and studied histologically, Second, the gland may be studied pre-operatively by determining the amount of radioactive iodine that is taken up by the thyroid nodule. An active, hyperplastic gland has a great affinity for radioactive iodine. This, of course, is the preferable means of determining the activity of the nodule.

The importance of such a preoperative study is well understood, since there is no known case of a carcinoma being reported in a single, toxic, hyperplastic nodule of the thyroid gland. With this information, a surgeon can approach the problem of a single nodule of the thyroid gland in a much more scientific manner. If the nodule is hyperactive, with toxic manifestations, the chances of carcinoma being found is practically nil. If the nodule is hypoactive, there is an excellent chance that a malignancy may be present, and it should be dealt with accordingly. The true percentage of malignancies in inactive single nodules it not known since sufficient cases have not been studied to determine a true ratio of the active or inactive nodules. However, it is thought to be 50 per cent.

In 1945, Cole reported 92 cases of solitary nodules of which 22 were malignant or a 24 per cent malignancy. Let us suppose that 50 per cent of the single nodules showed evidence of hyperplasia with toxic manifestations; then, if malignancies are not found, in such nodules, the percentage of malignancies in the 46 hypoactive nodules would be nearly 50 per cent. Certainly any tumor mass that would have a percentage of malignancy greater than 24 per cent should be removed, as soon as possible.

Thyroid glands, which contain more than one nodule, either toxic or non-toxic, can be studied in a manner similar to that of a single nodule. It has been stated that a nodule may be hyperplastic and yet is non-toxic. Therefore, it is possible to have both toxic and non-toxic in one gland, and yet they are both hyperplastic. This can be determined by histological and radioactive iodine studies.

It is well known that nodular, toxic goiters are found in older patients, are associated with a higher incidence of cardiac involvement, and are much more difficult to treat. Failures to control adequately by means of medication over a prolonged period are much more common. Results obtained from treatment by radioactive iodine are not as good as with other types. Therefore, one is justified in advocating surgery in the multiple nodular toxic goiter after a thorough control by anti-thyroid drugs.

There is seldom seen an inflammatory condition isolated to one particular segment of the thyroid gland. Be it so, the diagnosis of such a condition would be practically impossible without surgical biopsy. It goes without saying that inflammatory conditions are treated by means other than surgery. However, one should not observe for long periods a single nodule thought to be an inflammatory lesion.

During the past decade, our interest in cancer of the thyroid has increased tremendously. Although, the true nature of cancer of the thyroid remains in obscurity, much is known concerning its histological appearance and its biological behavior. Therefore, we are now in a position to offer these patients much for this condition.

The benignancy of the histological appearance as well as that of the clinical course of the less anaplastic, and fortunately the more common type, required many years to place it in the category of malignancies of the thyroid. Fortunately, 80 per cent of the malignancies of the thyroid are in this group. The treatment of these is thought to be adequate.

It was thought with the advent of radioactive iodine that a new approach in the treatment of thyroid malignancies had been found. This has not proved to be the case. Unfortunately, only a few of the malignancies will take up the iodine. Radiation by means of x-ray is still a valuable adjunct in our attack on cancer of the thyroid.

Therefore, it is an accepted fact that the best means of attacking malignancies of the thyroid is by the complete surgical removal, when at all possible. The concomitant radical neck dissection is a disputed point. There is no dispute in those with evidence of spread to the cervical nodes, however.

DIFFUSE GOITER

Whereas, one may say categorically that nodular lesions of the thyroid are treated surgically, diffuse lesions of the thyroid gland are for the most part treated medically. There are exceptions to both.

Inflammatory lesions of the thyroid are not too difficult to diagnose. It is rather easy to determine the pressure of toxicity; it may, at times, be difficult to distinguish an inflammatory condition, from a malignancy. Fortunately, inflammatory conditions involve the entire gland; malignancies seldom do. There is a peculiar firmness about a malignant nodule that is different from the firmness of Hashimoto's or Reidel struma. The patient may give a history or present signs of inflammation within the neck in thyroiditis that is absent until late in malignancies.

There is still some dispute as to the proper treatment for diffuse non-toxic goiters. Fortunately, a majority of these require no treatment at all. However, there are three approaches to the treatment of this condition. First, and most important is the prevention by proper dieting or the giving of iodine to treat one. The older Swiss writers (Jodbasedow) warned that the giving of iodine to such a person may precipitate a state of thyrotoxicosis. This rarely if ever takes place. Second, and one that is gaining more and more popularity is the administration of thyroid extract. It will cause many of these glands to retrogress and it will improve the general condition of the patients. This is particularly true if there is a concomitant low metabolism. It is quite frequently given to pregnant women with goiters or who have low metabolism.

The third form of treatment for this form of goiter is surgical. This may be indicated because of the size. They also may become nodular or cystic or they may even become toxic. There is a chance, though slim, of one becoming malignant. To relieve pressure on the trachea is perhaps the most important surgical indication.

The treatment of toxic, diffuse goiter is enjoying the most controversy in the treatment of thyroid disease and can always precipitate an argument among internists and surgeons. Certainly, it is becoming more a medical problem and less a surgical problem. One would be foolish to believe otherwise. In a survey of 1000 cases[5] more patients (9 per cent) were submitted for surgery with diffuse, non-toxic goiters than were diffuse toxic goiters (6 per cent).

Before beginning a discussion concerning the treatment of toxic, diffuse goiters, it may be wise to discuss some of the newer ideas concerning the diagnosis.

The percentage of malignancies in multiple goiters is roughly from 8 to 10 per cent. The percentage of malignancies is still higher than that of masses within the breast. Therefore, there is justification in removal of thyroid glands which contain multiple nodules.

The diagnosis of nodular toxic goiters by means of radioactive iodine is not as conclusive as with other forms of Graves' disease[3]. Nor does a high uptake or low uptake prove or disprove thyrotoxicosis[4].

Even with the advent of many new aids in diagnosis still the most important means is by the history and physical examination. However, the degree of toxicity cannot be determined primarily by this means. The basal metabolism determination is probably the most widely used means of determining the state of the patient, but it must be remembered that it is not a test of thyroid activity.

Since the advent of radioactive iodine and the simplification of the determination of the protein bound iodine[6], we now have two excellent means of determining the state of activity of the thyroid gland[7].

It was found early that the thyroid gland will take up a certain percentage of radioactive iodine[7]. This action can be blocked by the action of certain drugs[3]. Therefore, after the ingestion of a tracer dose of radioactive iodine, provided the patient is not taking other medication, the activity of the gland can be determined. The simplicity of this test is astonishing.

The determination of the protein bound iodine is another means for determining the activity of the thyroid gland. In recent years, this test has become simplified[6] and is within the reach of every one. Samples of blood can be collected in a doctor's office and forwarded to a laboratory where such a procedure can be performed.

Proponents of the medical form of treatment have had two wonderful adjuncts, indeed, the very reasons one may even consider non-surgical treatment for diffuse, toxic goiter. These are the anti-thyroid drugs and radioactive iodine.

When Astwood[1] reported his results of the treatment of toxic thyroids with a new anti-thyroid drug, surgeons the world over found justifiable reasons for still advocating surgery for diffuse, toxic goiters. With the earlier anti-thyroid drugs, there were many contraindications for the long continued use of these drugs. However, it has been found that propyl thiouracil is an extremely safe drug. Numerous authors have reported as high as 60 per cent remissions after one course of therapy[8]. Some as high as 75 per cent with two or three courses of treatment. These figures are still higher in the moderate to mildly toxic patient. Much of the failure of propyl thiouracil therapy is the failure of the physician to use sufficient dosage.

It is true that in the treatment of diffuse, toxic goiter with radioactive iodine more time will have to elapse and many more cases studied before definite conclusions can be reached. Nevertheless, sufficient time has elapsed and a sufficient number of cases studied to come to the conclusion that radioactive iodine used properly is a relatively safe drug[9]. More and more is being given to younger individuals without proved evidence of serious consequence. There are those who have no hesitancy to use it in the very young.

The most serious complication, at present, is the production of a myxedema state, and this complication is rather simple to control. Certainly, it is not as serious as the impaired laryngeal nerves, the tetany, and the deaths associated with surgery.

Those of us who do surgery are not to be dismayed. There are still many indications for surgery in the treatment of diffuse, toxic goiter patients. However, in a survey from Jefferson Medical College, more cases of malignancy were submitted for surgery than were diffuse, toxic goiters[5]. Surgery in diffuse, toxic goiter should be reserved for the very large goiters, patients who are intolerant of the drugs, uncooperative, or respond poorly to medication. Many of the failures to respond are due to the inadequate doses prescribed.

MALIGNANCIES

It is true that there is little place for the medical treatment of thyroid malignancies. But, the occasional patient is seen in whom no hope can be offered by surgical excision. The drug of choice in the treatment of these unfortunate individuals as well as hopeless malignancies in other parts of the body is not morphine. Much can be done to slow down the growth of these cancers and to make these patients' existence more bearable.

As stated earlier, it was hoped that radioactive iodine would be helpful in the treatment of malignancies of the thyroid. However, it was found helpful in only a few cases. There is a distinct difference both as to the affinity of radioactive iodine and otherwise between the overactivity due to malignancy and the overactivity due to thyrotoxicosis. The former has little or no affinity for radioactive iodine. The latter has a great affinity for such. However, some metastatic nodules show evidence of increased thyroid. In these radioactive iodine will benefit.

It is also well known that approximately 70 to 80 per cent of the malignancies of the thyroid are of the papillary type. And of all the malignancies of the thyroid, these have the greatest sensitivity to radiation by means of x-ray. Therefore, x-ray may be used in the treatment of a majority of the cases of thyroid malignancies. But only as an adjunct or in those beyond the realm of surgical attack.

CONCLUSIONS

1. There are distinct indications, both medical as well as surgical, for certain types of treatment in thyroid diseases.
2. These can be roughly divided as to medical or surgical by the absence or presence of nodules within the gland.
3. The majority of diffuse, toxic goiter patients can be treated correctly by propyl thiouracil without surgery.
4. Radioactive iodine can be used safely and effectively in the treatment of diffuse, toxic goiter.
5. Surgical extirpation is still the treatment of choice in patients with thyroid malignancies.
6. Radioactive iodine studies and protein bound iodine determinations have proved to be our best tests for determining the presence of thyrotoxicosis.
7. Radioactive iodine studies should be done prior to surgery on all single adenoma.

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TB SYMPOSIUM

The fourth annual Symposium for General Practitioners on Tuberculosis and other Chronic Pulmonary Disease will be held in Saranac Lake, New York, from July 11 to 15, 1955. It is approved for 26 hours of formal credit for members of American Academy of General Practice.

This five-day course is designed particularly for general practitioners and presented over a period short enough so that they may readily attend. Many of the sessions are informal panel discussions with ample opportunity for questions from the audience.

Many doctors attending previous sessions of this Symposium have brought their families with them to enjoy the many vacation facilities of the surrounding Adirondack Mountains.

The registration fee for the Symposium is $40.00. Further information and copies of the program can be obtained by writing Dr. Richard P. Bellaire, general chairman, Symposium for General Practitioners, P. O. Box 2, Saranac Lake, N. Y.

AED

Alpha Epsilon Delta, the national premedical honor society, will sponsor a regional conference on premedical and predental education at the Dinkler-Tutwiler Hotel, Birmingham, Alabama, on Thursday and Friday, March 18 and 19. The conference will provide a forum for the consideration, discussion, and evaluation of the findings and recommendations of the report "Preparation for Medical Education in the Liberal Arts College," by the Subcommittee on Preprofessional Education of the Survey of Medical Education.

A blow with a word strikes deeper than a blow with a sword—*Burton.*

CLINICAL TEACHERS FOR THE MEDICAL CENTER

W. T. Sanger, Ph. D., Medical College of Virginia
Richmond, Va.

(The second of a series of articles designed to present the general aspects of and to answer questions pertaining to Mississippi's four-year medical school.)

Out of much trial and error over many years has come the geographic wholetime plan of employing clinical teachers for medical schools. It is almost universally adopted by them. Generally this plan provides a basic salary to cover employment for half time or more with the privilege of private or consulting practice for the remainder of the individual's time. Usually there is a ceiling set up combining salary and personal earnings, beyond which any further earnings revert to the institution or the department concerned for specified purposes but not for the benefit of the individual concerned.

The geographic wholetime plan adopted by the University of Mississippi medical school for clinical teachers is even more conservative than most other plans in effect. It offers payment for three-fourths of the clinician's time, establishes a lower ceiling than usual, fixes a limit on the overage beyond the ceiling, and restricts the use of the latter. The latter is a new feature and offers a good opportunity to demonstrate its general value and application.

The term "geographic wholetime" bothers some individuals until it is explained. As medical education and service to the sick have increased in complexity during recent years, it has been found absolutely essential to have available, with offices within the institution, a group of clinicians to lead in the education of undergraduates, interns and residents, supervise and also take an active part in the care of outpatient, inpatient and emergency room cases. Otherwise, much work suffers for lack of hour by hour direction and support by immediately available clinicians. Absolute wholetime, wherein the clinician gives his full day to the institution from his office within it, breaks down for reasons other than the cost involved. Many outstanding clinicians refuse to be hired men and women on an absolute wholetime basis. They find contact with private patients stimulating and essential to continued professional growth. Furthermore, it is contrary to sound public policy to make it impossible for the taxpayer to see a medical school clinician of special competence. Where this is not arranged, such clinicians do work for patients without pay, or sooner or later, the institution begins to bill patients for such work and thus participates in medical practice, which is certainly not desirable for a state institution.

The only argument against geographic wholetime is the objections sometimes made that such staff members can earn too much money. But this is readily controlled by ceilings on total earnings and in the case of the Mississippi plan, on the total overage beyond which the individual cannot benefit himself directly or indirectly. Furthermore, charges in part for office space, for secretaries, for all laboratory and x-ray work done for private patients and other possible items, depending upon local conditions, constitute other restrictive possibilities where needed.

Employment on geographic wholetime basis has become fairly well standardized, is adaptable to local conditions, has stood the test of time and can be so completely detailed (precluding any private deals) as to give assurance to the public and to the medical profession, that fair dealing has been provided for all. Mississippi is to be congratulated on finding it possible to apply the plan of geographic wholetime on a conservative, yet no doubt liberal enough basis to attract an eminent nucleus of clinicians for its new venture into medical education on a four-year basis.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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EDITORIALS

THE AMERICAN WAY

More than 100 million Americans are today making financial provision for accident and sickness through voluntary health insurance. The record-breaking figure comes from the Health Insurance Council in announcing the result of its annual survey of voluntary health insurance coverage in the United States.

Not even the staunchest proponent of compulsory medicine can deny that the extension of voluntary health insured protection year by year to more and more of our people is one of the social phenomena of our day. Yet, this spectacular growth is not a volume of persons covered but a vigorously continuing expansion of the benefits provided, a widening of the variety of policies and plans available to fit the needs of all, and a mounting contribution to the medical-hospital economy thereby strengthening our entire system of medical care.

While statistics alone cannot tell the whole story of the increasing effectiveness of health insurance, they are understandable sign-posts of the way the voluntary system is meeting the challenge of the day. Last year, the survey reports payments jumped 20 per cent and the total payment of voluntary health insurance exceeding $2.5 billion with private insurance paying 56 per cent of the bill, Blue Cross and Blue Shield type of plans 37 per cent, and independent plans the remaining seven per cent.

These figures released by the Council clearly speak up against the insidious arguments leveled at our competitive system and our whole voluntary health program. They indicate an increasing desire of the people to solve their problems of financing medical care in the traditional American way by helping themselves. It is clear that as physicians providing a very substantial part of the services paid for by health insurance we have a rapidly increasing responsibility for the successful operation of voluntary health insurance.

The magnitude of the problem is indicated by the recent action of the Board of Trustees of the American Medical Association at the Miami meeting. A national commission of 13 physicians has been appointed to make a comprehensive survey of the various types of medical service plans which are available to the American people. Chairman of the new Commission is Dr. Leonard W. Larson of Bismarck, N. D., a member of the A.M.A. Board of Trustees.—New York Medicine.

TOO MANY?

A few people are saying that we are getting too many medical schools. We think it is too soon to be disturbed about this. It is true that we are turning out a lot of doctors now. But our people are utilizing more medical service than ever before, just as the United States utilizes more automobiles and everything else than any other nation.

Doctors are seeing the necessity of postgraduate work. Much of the space and the efforts of our leading medical schools must be utilized for postgraduate work. We not only have our own doctors to be taken care of, but we will have many doctors from other nations who will come to our schools for graduate work. We are the Mecca for medical education. Here in the mid-South schools like Tulane, University of Tennessee, and Vanderbilt will feel duty-bound to furnish postgraduate work for utilization at home and abroad. Mississippi, Arkansas, and Alabama could be the leaders for training general practitioners and health officers. Our medical school is most fitting for training health personnel. Research work is becoming more important and we can do a lot of it in the smaller medical schools and in the rural communities if we have the vision and the application to do so. So let us be optimistic and courageous, and look to the future.

MID-SOUTH PAST-PRESIDENTS MEET

The past-presidents of the Mid-South were entertained delightfully by the president, Dr. R. B. Caldwell, at the Peabody Hotel on February 9. Members present included: Drs. Frank Acree, Hoyt Allen, W. H. Anderson, John G. Archer, A. G. Hudson, H. Fay Jones, Lawrence Long, L. H. McDaniel, V. B. Philpot, H. T. Smith, and H. King Wade. Drs. J. L. Dunavant, L. S. Nease, F. L. Husbands, and Julian Price were absent.

Dr. Allen Cox of Helena, Ark., much beloved and lamented, had passed to his reward since the 1954 meeting.

STATE MEETING

Let us turn our attention to our State Medical Association which meets in May on the Coast. Mississippi is growing right along in medical efficiency. The general average is moving up and medical centers are developing. We have medical problems common to us while there are those others nation-wide. We need to watch the cost of medical care. Insurance for medical care by the individual or the family is serving well, but we have adjustments to make. The public needs to understand and both the hospital and the medical profession need to be reasonable to strive to give more service at a reasonable cost.

Voluntary Insurance is now imperative to pay the hospital for sickness and for operations. It is a great benefit to our society. Sickness insurance for profit will not serve the common good.

A medical school is just about as good as the doctors doing the teaching.

News and Comment

NEW PRESIDENT

JOE VERSER, M.D.

Dr. Verser was born in Harrisburg, Ark. He received his B.S. degree from Union University, Jackson, Tennessee (1932), where he was a member of Sigma Alpha Epsilon fraternity.

In 1936 he was awarded an M.D. degree from the University of Arkansas School of Medicine and received his hospital training at Shreveport Charity Hospital. After this he became associated with his father in the practice of medicine in Harrisburg and in operating the Verser Clinic-Hospital. At his father's death in 1951, he became chief of staff of this hospital.

Dr. Verser is a former member of the Blue Cross-Blue Shield Commission in Arkansas, past-president of the Craighead-Poinsett County Medical Society and of the First Councilor District Medical Society. Since 1949 he has served as secretary of the Arkansas State Board of Medical Examiners. He is also a member of the International College of Surgeons, is a veteran of World War II, and a member of the First Baptist Church of Harrisburg.

DR. NABERS TO HEAD MID-SOUTH ASSEMBLY

Dr. L. W. Nabers, surgeon of Morristown, Tenn., was named president-elect of the Mid-South Postgraduate Medical Assembly at its annual convention in Memphis.

Dr. Joe Verser of Harrisburg, Ark., assumed the presidency, succeeding Dr. R. B. Caldwell of Baldwyn, Miss. Elected vice-presidents were Dr. O. E. Ringold of Cleveland, Miss., Dr. Milton Johns of Stuttgart, Ark., and Dr. Thomas Stevens of Knoxville. Dr. Thurman Crawford of Memphis was reelected secretary.

Dr. Nabers has been practicing in Morristown since 1933. He operates Nabers Hospital and Clinic which he built in 1936. A graduate of the University of Cincinnati, he interned at Hillman General Hospital in Birmingham, Ala., and did three years' postgraduate work as a surgical fellow at Mayo Clinic, Rochester, Minn.

Dr. Nabers is a fellow of the American College of Surgeons. He is a member of the Southeastern Surgical Congress, American Medical Association, Tennessee State Medical Association and a former president of the Hamblen County Medical Society. He is married and has one son, C. L. "Buddy" Nabers who will be graduated this month from the University of Tennessee College of Dentistry.

GILL MEMORIAL EENT CONGRESS

The Gill Memorial Eye, Ear, Nose, and Throat Hospital, Roanoke, Virginia, announces its twenty-eighth annual spring congress from April 4 to April 9.

Eminent guests include: Dr. Chevalier Jackson, Philadelphia; Dr. T. G. Martens, Rochester, Minn.; Maj. Gen. Daniel Ogle, Washington, D. C.; Dr. Thomas Paine, Birmingham, Ala.; Dr. R. Townley Paton, New York, N. Y.; Dr. A. D. Ruedemann, Detroit; and Dr. Franklin M. Foote, New York.

GOITER ASSOCIATION

The American Goiter Association will hold its 1955 meeting in the Skirvin Hotel, Oklahoma City, Oklahoma, April 28, 29 and 30, 1955.

The program for the three-day meeting will consist of papers and discussions dealing with the physiology and diseases of the thyroid gland.

WANTED: General practitioner with some experience in practice. Excellent proposition in city of 10,000. Good hospitals and laboratory facilities.

Write Dept. A, *The Mississippi Doctor,*

ABSTRACT FROM PEDIATRIC LITERATURE

HARVEY F. GARRISON, M. D.

INFANTILE SPASTIC HEMIPLEGIA: I. INCIDENCE. M. A. Perlstein and P. N. Hood. Pediatrics 14:-436-441 (Nov.) 1954.

Of 334 children with spastic hemiplegia whose average age was 6.5 years and who were observed in the course of 10 years, 189 were males and 145 were females, a ratio of 5 to 4. One hundred eighty-five (55 per cent) had hemiplegia on the right side, while 149 (45 per cent) were affected on the left. The negro persons were distributed fairly randomly through the present spastic hemiplegic population; the insignificant differences in distribution that occurred were thought to be related to geographical and socioeconomic factors and not to race per se. In 222 (66 per cent) of the 334 patients spastic hemiplegia was congenital, and in 112 (34 per cent) the condition was postnatal; the incidence of postnatally acquired cases was about one-third of the patients reported on as compared to one-tenth of the total population with cerebral palsy. Of the 334 patients, 144 (43 per cent) had convulsions; thus the incidence of convulsions in this group was significantly higher than that reported for the general population, for all types of brain injury, for mixed spastic groups, and for most other series of spastic hemiplegics. Congenital and postnatally acquired cases, convulsive and nonconvulsive cases, and males and females were all distributed randomly between the authors' groups with spastic hemiplegia of the right or left side. Congenital and postnatally acquired cases, as well as convulsive and nonconvulsive cases, were distributed at random between the males and females. The patients with postnatally acquired spastic hemiplegia showed a significantly greater incidence of convulsions than those with congenitally acquired cases.

COMMENT

The different types of paralysis found in people following spastic hemiplegia is quite varied. We have a very good public health program under the Department of Education in Mississippi for the treatment of such conditions in the spastic department, but this set up could be improved upon considerably by perhaps a general reorganization of the children's facilities who are looking after the condition. It seems that we are having a greater percentage of whites than colored people with spastic paralysis.

DEATHS

DR. MALCOLM I. BREWER

Services were held January 26 for a prominent Aberdeen physician who was killed when a gun he was cleaning accidentally discharged.

Rites for Dr. Malcolm I. Brewer, Sr., 61, were conducted from the Lann Memorial Funeral Home with the Rev. K. T. Tucker, pastor of the First Methodist Church, officiating and burial following in Otts cemetery.

A coroner's jury ruled the death, which occurred at the home of a brother where Dr. Brewer was staying, accidental.

A graduate of Aberdeen High School, Dr. Brewer took his pre-medical training at the University of Mississippi. He graduated with a medical degree from Tulane University. After four years in the Army during World War I, he opened his practice at Denver.

He returned to Aberdeen in 1950. He was a member of the American Legion, a Mason and Shriner. He was a member of the Monroe Medical Society and the American Medical Association. He was a member of the Aberdeen First Methodist Church.

He took a medical refresher course at Mayo Clinic in 1940 and another at Cook County Hospital at Chicago in 1948.

He leaves his wife, a son, Malcolm I. Brewer, Jr., of the Navy; a sister, Miss Claudie Carlton Brewer of Aberdeen, and a brother, Lamar Brewer of Aberdeen.

DR. T. F. KILPATRICK

Services for Dr. Thaddeus Franklin Kilpatrick, prominent and beloved east Mississippi "country doctor," were conducted February 5 at the Noxapater Baptist Church. The Rev. Ivor Clark, the Rev. T. E. Shelton and the Rev. C. C. Weaver officiated with burial following in the church cemetery under the direction of Daws Funeral Home, Philadelphia.

Dr. Kilpatrick, who was 88, died at his home January 19, after having become ill at his office where he still practiced despite his age.

Born in Neshoba County, he was educated in the schools of that county and later taught for two years to earn money and qualify for entrance into the University of Louisville Medical College at Louisville, Ky.

He began his practice in May, 1892, at Ruthven Springs near Noxapater and two years later married Miss Hazel Rodgers Hickman who died 15 years ago.

Dr. Kilpatrick was a director of the Grenada Bank system, a trustee of Winston County Agricultural High School and a deacon of Noxapater Baptist Church. He was a Mason, a past president and charter member of the East Mississippi Medical Society, and a member of the Fifty-Year Club of the Mississippi Medical Association, and the Southern Medical Association.

On September 26, 1950, residents of Noxapater honored him by observing "Dr. Kilpatrick Day," featuring a parade of many of the estimated 100 babies he delivered each year during most of the years of his practice.

Dr. Kilpatrick was known as a philanthropist, particularly in helping underprivileged youths gain an education. He was instrumental in construction of the three sanctuaries which have housed the Noxapater Baptist congregation since he started practice there. An electric organ, now in the church, was given by him in 1947. Since his wife's death he had refused to charge more than expenses involved for his service.

He leaves two sons, Roger Kilpatrick of Louisville and Dr. Frank Kilpatrick of Clarksdale; two brothers, Henry Kilpatrick of Philadelphia and W. N. Kilpatrick of Noxapater; a sister, Mrs. Eck Farish of Noxapater, 14 grandchildren and six great-grandchildren.

DR. A. S. HILL

Funeral services were held February 19 at Holcomb Methodist Church, in Grenada County, for Dr. A. S. Hill, well-known Holcomb physician, who died at his home after a long illness.

Arthur Spencer Hill was born May 6, 1874, at Sharon, a son of the late Mr. and Mrs. John Hill. He attended medical school in New Orleans and graduated from Memphis Medical College, Memphis, Tenn., in 1902.

Dr. Hill began his practice in medicine at Stokes, Miss., immediately after graduation. He was married to Miss Lola Brock of Brock, Miss., (near West) in 1905. The couple moved to Holcomb in 1910 where he established an office and administered to the residents of that community for more than fifty years.

A graduate of Memphis Hospital Medical College, Memphis, Tenn., he was licensed to practice in Mississippi in 1904.

He served as a trustee of the Holcomb Consolidated School for six years and eight years as mayor of Holcomb.

Dr. Hill was widely known for his charitable deeds and his willingness to serve the ill in spite of inclement weather. His faithfulness to the rich and poor through the years exemplified his calibre and sense of responsibility.

He, like all country doctors of the early years, was an unsung hero. He started visiting patients on horseback, later by horse and buggy and lived to experience the automobile-age, all the while responding to every call and many times far beyond the call of duty.

Surviving are the wife, four sons and one daughter, E. B. Hill of Cleveland, M. S. Hill, and J. R. Hill of Holcomb, A. S. Hill, Jr., who is with the State Tax Commission, Jackson, and Mrs. R. W. Minyard of Tutwiler. Seven grandchildren and one brother, Frank Hill of Canton, also survive.

Courtesy Cards

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Ankle Joint Injuries*

DON H. DONOGHUE, M.D.
Oklahoma City, Okla.

ONE OF THE most frequent traumatic conditions which the physician in general practice is called upon to treat is an injury to the ankle joint. The fact that many of these injuries are treated over-casually might suggest that there has not been sufficient consideration of the exact pathology present in each individual case. Certainly, without a definite idea as to the nature of the injury which has actually taken place, it is difficult to treat the condition intelligently.

A. Anatomical Considerations

A brief review of some of the anatomical characteristics which have a direct bearing on the type of injuries that occur at the ankle joint will serve to clarify a later discussion as to pathology and the recommended treatment. While the ankle joint is actually a rather complicated joint with many different components of motion, from the functional standpoint it is essentially a hinge joint permitting dorsal flexion and plantar flexion only. The lateral motion inherent in the tarsus does not take place in the tibio-talar joint, but rather through the tarsal joints, centering around the head of the talus. The ankle joint proper is an extremely stable joint of the mortice and tenon type, the mortice consisting of the long lateral malleolus (formed by the lower end of the fibula) and the shorter medial malleolus and undersurface of the tibia, the tenon consisting of the body of the talus which fits snugly into the socket between the two malleoli. It is to be noted that the lateral malleolus actually extending below, or distal to, the under surface of the talus, its medial articular surface providing articulation for the whole lateral surface of the talus. It permits no rocking motion to the lateral side. The fibula is bound very tightly to the tibia by the tibio-fibular ligament so that in effect the tibia and fibula are one bone at the ankle. The medial malleolus, in contra-distinction to the lateral one which is long and narrow, is short and stubby and seldom extends more than one halfway down the vertical height of the talus. It is roughly pyramidal in shape with a very broad base directed upward and a relatively narrow vertex directed downward to which is attached the medial collateral ligament of the ankle. The ankle joint is further stabilized by the extensive investiture of ligament structures which surrounds the joint. This capsule is very thin anteriorly and posteriorly and so permits flexion and extension of the ankle joint. It is strong in its lateral components which serve to hold the talus snugly into the recess formed by the tibia and fibula. It is possible to dissect each collateral ligament into many separate ligaments but essentially the medial collateral, or deltoid, ligament is one very strong stubby ligament running from the inner malleolus to the medial surface of the talus, extending backward to the calcaneus, and forward onto the navicular. In addition to stablizing the ankle joint, it has an intimate connection to all of the medial ligaments of the foot and serves to support the arch of the foot. The external lateral ligament on the other hand which is not as strong, has three primary fasciculi, one running forward to attach to the talus, another running backward to attach to the posterior portion of the talus, and a third directly downward to fasten to the calcaneus. These ligaments also blend into the lateral ligaments of the foot extending forward onto the cuboid and to the base of the fifth metatarsal. Together, the medial and lateral ligaments serve to prevent rocking motion at the ankle joint, and, to some extent, to prevent hyperflexion and over-extension, while at the same time permitting a normal range of antero-posterior motion.

B. Mechanics of Injury

Since the ankle joint is functionally a hinge joint normally permitting only dorsal flexion and plantar flexion, it follows that ligament injuries to the ankle are primarily due to lateral stresses and so readily fall into two categories, i.e., inversion injuries and eversion injuries.

Actually, inversion injuries usually consist of inversion, internal rotation, and plantar flexion of the foot on the leg, while eversion injuries result from eversion, external rotation and dorsal flexion of the foot. In each case the push is on one side and the pull on the opposite.

1. Inversion Injuries to the Ankle

In this type of injury, if the foot is inverted and the ankle and leg thrown to the outer side, it will be noted that the push is against the medial malleolus and the pull away from the lateral malleolus. As the foot inverts in relation to the leg, strain is put upon the external collateral ligament which is functionally designed to stop this motion. As a result of over-inversion, it will tear slightly, partially, or completely, according to the severity of the injury. As the inverting force continues and the lateral ligament gives way, the ankle opens up on the lateral side forcibly thrusting the talus against the medial malleolus. (Fig. 2) This malleolus, being short and stubby, may act as a fulcrum with its tip against the central portion of the talus, the talus rotating over the malleolus rather than breaking it off. In this case, the injury will be confined to a lateral side injury with either tearing of the lateral ligament or fracture of the lateral malleolus, or both. Inversion injury is by far the most common injury of the ankle joint. Eighty-five per cent of all injuries to the ankle consist of inversion injuries and are confined to ligament injuries, so-called "sprain" or "sprain-fracture" of the ankle. If the abnormal force continues and is severe, the medial malleolus actually may be pushed off from its origin at the base of the tibia, and the talus may be driven against the posterior portion of the tibia, shearing off the posterior lip of the lower articular surface. Other various injuries may occur such as fracture of the medial margin of the talus, fracture through the neck of the talus, and damages to the other tarsal bones, but by far more commonly the injuries are confined to the tibia and fibula and to the lateral ligaments.

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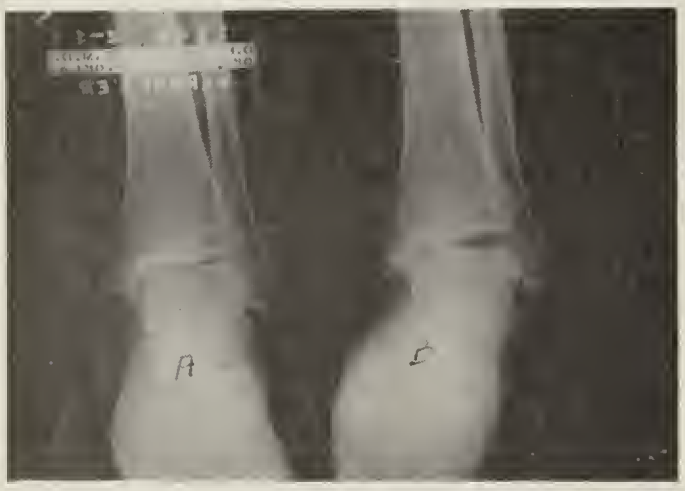

FIG. 2.—Inversion Injury to Ankle

A. Standard A. P. view
B. A. P. view with foot inverted showing rupture of lateral collateral ligament

2. Eversion Injury

If the opposite force is applied and the foot is carried outward in relation to the leg and the talus is forced laterally instead of medially, the anatomical difference between the two malleoli indicates or suggests the type of injury which will occur. On the medial side, the medial malleolus is short and permits the talus to rotate over it. On the lateral side, the lateral malleolus is at least as long as the height of the talus so the force applied here cannot permit rotation of the talus around it. The thrust then is directly against the lateral malleolus, the push being toward the outer side, the pull applied to the medial side of the foot. Usually, the talus is forcibly driven against the lateral malleolus before over-stress is applied to the short medial collateral ligament which can permit a considerable degree of lateral rotation of the talus. Stress applied to the lateral malleolus may cause one of several types of injury but all are really due to the same forces. The most common pathology is a fracture of the fibula somewhere below the level of the lower end of the tibia, resulting in a "single malleolus fracture." (Fig. 5A) However, this same force can actually drive the fibula away from the tibia, rupture the tibio-fibular ligament and cause separation of the ankle mortice. (Fig. 3B) As this force continues and the fibula is driven farther away from tibia, it may actually break the fibula as high up as the fibular neck. If the fibular fracture appears above the level of the ankle joint, one may assume that the tibio-fibular ligament has been torn and that the integrity of the ankle mortice has been lost. This is a very important point from the standpoint of treatment. Before the stress laterally is sufficient to push the fibula away from the tibia, something must give way on the medial side of the foot, and the medial malleolus is pulled off, ("bi-malleolar fracture"), (Fig. 4), either at its tip or anywhere

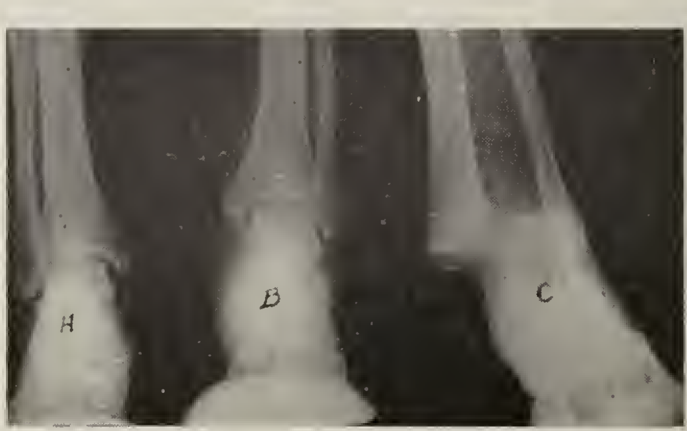

FIG. 3.—Cases Illustrating Eversion Injury with Ligament Tear

A. Normal
B. Tear of medial collateral and tibio-fibular ligaments with mild displacement
C. Different case. Same type with complete tear of medial collateral and tibio-fibular ligaments

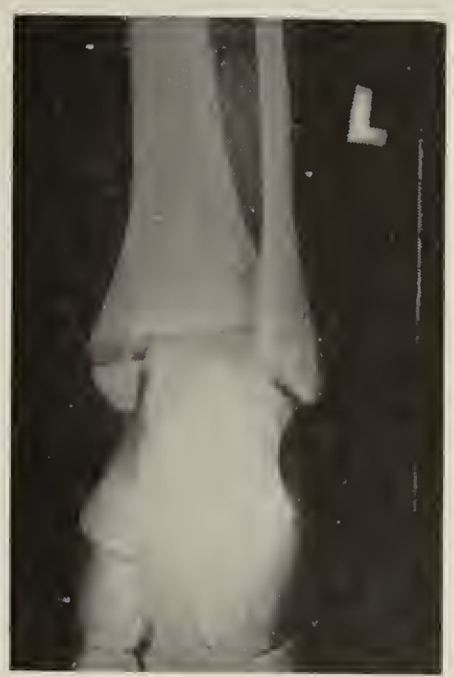

FIG. 4.—Eversion with Avulsion of Medial Malleolus. Shearing off of lateral malleolus. No ligament injury

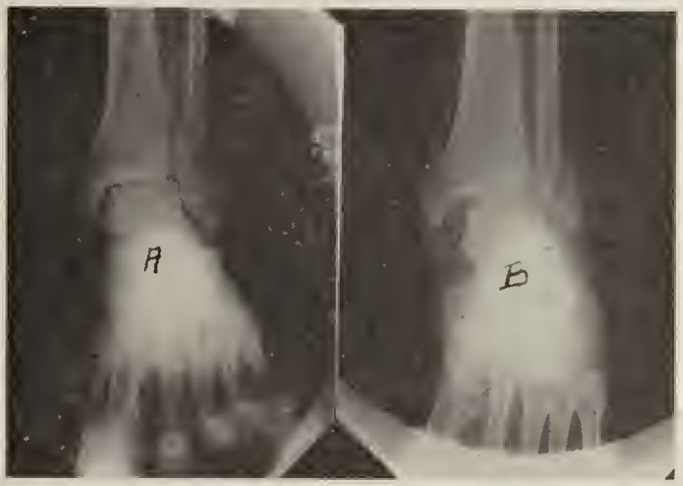

FIG. 5.—Eversion Injury
A. Standard A.P. view showing no displacement with fracture of lateral malleolus
B. Same case with eversion position showing tear of medial collateral ligament

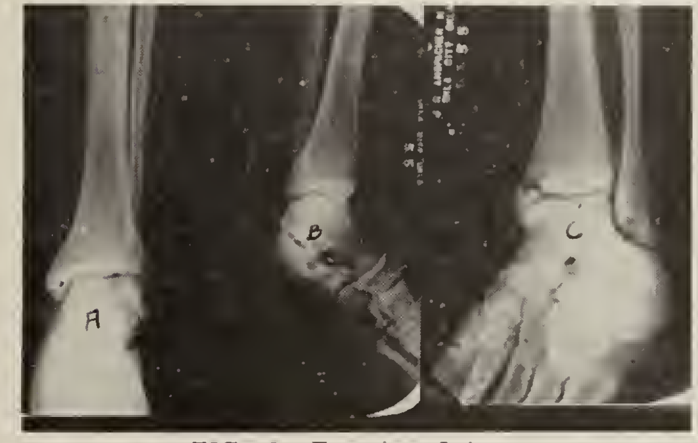

FIG. 6.—Eversion Injury
A. and B. Normal A.P. and lateral views indicating little pathology
C. Oblique view same case showing pathology well. (Fracture medial malleolus and torn tibiofibular ligament)

up to its attachment to the body of the tibia, or else the medial collateral ligament gives way, ordinarily at its attachment to the tibia. (Fig. 5B) The same force may, of course, fracture the anterior or posterior margin of the tibial articular surface or fracture the talus or other tarsal bones if the force is severe enough. While the great majority of the *total injuries* to the ankle joint are sprains and consist of inversion injury, a great majority of the *fractures* of the ankle are of the lateral malleolus and are caused by an eversion force. From the above, it becomes quite apparent that it is of great importance in each individual case to determine, if possible, the mechanism of the injury, and so to be able to forecast to some extent the areas upon which strain would be expected.

C. Diagnosis

1. History

Try to determine, if possible, the exact *history* of the injury, particularly the mechanics of the injury; whether the foot was forced into inversion or eversion. Exactly how did the accident occur? Was the patient immediately disabled or did the disability come on later as swelling increased? Was the foot originally deformed and later pulled back into position by the patient or by some helpful friend, or perhaps by the x-ray technician? How long ago did the injury occur? Was pain and swelling immediate or did it come on later? What was the early treatment? Has heat been applied, or cold? All these factors can give important leads, not only as to the type and location of injury, but as to the severity of the injury, which may give some guide as to the necessities of treatment.

2. Examination

Following the history, one should carry out a very careful, pain free, but extremely thorough examination of the part. By simple *observation* one may observe the position of the foot, the location and degree of swelling, the character of the skin, particularly ecchymosis or circulatory blebs. Then by careful *palpation*, further determination can be made as to the degree of the swelling and the amount of circulatory impairment. There may be obvious bony crepitation on careful palpation through the skin. Note by gentle manipulation the range of pain free motion in the ankle, being careful to get the patient's cooperation if at all possible, since resistance or muscle spasm may screen abnormal motion. Determine the degree and the location of the pain elicited by an attempt to rock the foot sideways. Note if there is increased lateral motion, since abnormal motion is very significant and indicates a serious injury.

3. X-RAY

The habit of glancing at these extremities and rushing to the x-ray room for diagnosis is to be deplored since it is important to observe the position and condition of the foot before any manipulation incident to the taking of the picture has been carried out. X-ray technicians are trained to position the extremities in certain standard positions and ofttimes will move the foot in such a way as to correct a deformity which might have given a very definite guide as to the extent of ligament damage. (Fig. 5A-B) The original pictures should always be made in the position in which the patient arrives if at all possible. (Fig. 3C) If the first pictures are not satisfactory, other views must be made. Always, x-ray in at least two, and preferably three planes; namely, antero-posterior, lateral, and oblique. (Fig. 6) If abnormal motion can be elicited, x-ray pictures should be made with the foot in its abnormal position. (Fig. 2-5).

Careful attention to all these details of history, physical examination and x-ray visualization may permit an early diagnosis of a serious injury and permit early remedial treatment, rather than postpone it until such a time that treatment is at best only palliative. Although the great majority of injuries to the ankle will be sprains without bone involvement, it is extremely embarrassing after some several weeks of treatment for sprain to discover that actually there were more complicating conditions present which could have been recognized early by adequate examination.

D. TREATMENT

Before the question of treatment can be approached intelligently in any individual case, some effort must be made to classify the injury, not only as to its type, but also as to its severity. While each case is an individual problem, a few general principles may well be pointed out. It is a well known fact that the closer an injury comes to a joint, the more necessary it is to get a completely accurate re-positioning of the injured structures. One cannot be satisfied with incomplete reduction or partial replacement of fractures about the ankle any more than at any other joint, certainly much less than you can about non-weight-bearing joints. One hundred per cent reduction must be accomplished by whatever method will assure the best result, not by the method which at the time seems most convenient. A little extra care at the time of the injury may save a good deal time and labor at a later time. If surgery is to be required in treatment of an ankle injury, this should be decided as early as possible in order to get the optimum result.

SPRAIN

Sprains can most readily be classified into three divisions; namely, *mild*, *moderate* and *severe*, a division which is largely self-explanatory and is subject to a good deal of variation according to the individual physician. The groups do, of necessity, overlap.

A. A *mild sprain* is one in which there has been a partial tear of one of the ligaments at the ankle but without any actual functional weakening of the structure of the ligament itself. In such a case one would expect to find minimal symptoms; local tenderness, rather sharply localized swelling, mild disability, particularly noticeable on inversion or eversion of the foot. Examination will reveal no pain on normal motion, no abnormal motion, and only a moderate degree of pain on re-applying the stress which caused the original injury. X-ray examination in this case will be negative. This type of case requires no very extensive treatment and is the type which gives dramatic results from the local treatment which was extremely popular a few years ago. Unfortunately, this method has been applied in many cases where it was woefully inadequate. This local treatment consists of application of ethyl chloride spray to the skin, or local injection of novocain, hyaluronidase, or hydrocortone acetate, each having a slightly different effect but accomplishing somewhat the same results. Ideal treatment should probably include rest with application of ice, but ordinarily in a mild sprain this it not necessary and not justified to the extent that it interferes with the patient's occupation. Local treatment followed by adequate strapping and the wearing of a well fitted shoe will be all of the treatment which is necessary, where there has been no actual weakening of the ankle joint.

B. A *moderate sprain* consists of one in which there has been an actual tear of a single fasciculus or of several fasciculi of the ligament but in which the integrity of the ligament has not been lost although there is definite weakness. The history will reveal a sharp inversion injury of the ankle joint. The patient ordinarily falls down and has severe, immediate pain. He is not necessarily unable to walk since direct weight bearing does not put strain on the external collateral ligament. Swelling is usually prompt and relatively severe. The symptoms are such that medical aid is rather promptly sought. On examination of the patient, the pain will be found to be severe, the swelling diffuse including ankle and foot, and tenderness will be over the lateral side of the ankle and foot and sharply localized at the area of the damaged ligament. The foot may hang in an inverted position and any attempt to invert the foot beyond this pendulous position will cause pain. Even normal motion may cause discomfort. Any attempt to reproduce the force causing the injury will cause pain. There will be *no* abnormal lateral motion in the ankle joint. The x-ray will be negative except it may show a sprain-fracture which is simply an avulsion of a fragment of bone by the ligament at the point of its attachment.

In treatment, the aim in this degree of sprain must be not only relief of the symptoms but also protection to prevent further injury, since the strength of the ligament may be sufficiently impaired to predispose to a later complete avulsion by a relatively minor force. Local treatment may be carried out in these cases and may have a decidedly beneficial effect. It should not be followed by an effort to obtain early ambulation. Since it does screen the symptoms, local injection may do more harm than good if it permits the patient to overuse the ligament without the protection of pain and muscle spasm. Ideal treatment consists of bed rest with the foot elevated and packed in ice. This should not be interpreted as meaning application of a single ice bag to the foot. The best method is to actually pack the extremity in ice, either directly on the skin or rolled up in a turkish towel. Cold should be continued for 24 to 36 hours depending upon the degree of swelling and the rapidity of its control. This will depend pretty directly upon the promptness and efficiency at which the cold is applied. Following this period of ice packing, posterior and lateral stirrup splints should be applied and the patient allowed to get up on crutches, but told not to bear weight on the foot. As the swelling subsides, four or five days later, the splint should be replaced by a walking cast which may be worn from ten days to three weeks, depending upon the degree of injury and its response to treatment. Following removal of the walking cast, it is advisable to apply a well fitted adhesive strapping to protect the ligament which has been injured and to prevent re-injury before healing is complete. The ligament should ordinarily be protected for at least four weeks. If the original injury is treated thus adequately, there is little reason to expect recurrent injury. The commonly seen picture of the weak, relaxed ankle which is sprained at the slightest provocation can be avoided.

C. *Severe ankle sprain* consists of one in which the ligament has been completely avulsed and has lost its integrity. The history will be essentially the same as for moderate sprain but all the complaints will tend to be more severe. It frequently will be volunteered that the foot has been out of position and has been straightened up in order to relieve the severe pain. On examination, the findings will be much more notable. The swelling will be more extreme; the pain may be great; any attempt at motion of the foot is resisted. If the foot is examined early, abnormal motion can be demonstrated. It is justifiable to inject novocain into the painful area and repeat the examination in order to determine whether or not the ligament actually has been severed. It may even be permissible to use light pentothal anesthesia in order to permit a more thorough examination if it is suspected that there has been complete separation of one of the ligaments of the ankle joint. An x-ray should be made in the abnormal position demonstrating the abnormal motion if possible. (Fig. 2-5) Such a case is relatively infrequent but is a very serious injury. It is not necessarily accompanied by a fracture. (Fig. 3C) One of the most serious injuries of the ankle joint is laceration of the medial collateral and the tibio-fibular ligament, with no positive x-ray findings at all. The external collateral ligament may be torn completely away and the x-ray appear entirely normal if the foot is not carefully positioned. Treatment of this case should go far beyond that of the ordinary sprain of the ankle, and a prompt decision must be made as to the degree of pathology since, if surgery is to be utilized to repair the ligament, it should be done promptly in order to secure the best results. In general, if there is complete severance of the medial collateral or the tibio-fibular ligament, or both, surgical repair is certainly the treatment of choice. If the complete avulsion is of the external collateral ligament, it may well heal in satisfactory position without surgical intervention, although many of us feel that even here, surgical repair would speed up recovery and improve the likelihood of a 100 per cent result. The important consideration is that one must not temporize, but must decide promptly if surgery is to be utilized. If it is concluded that non-surgical treatment is best, then local injection, ice pack, splinting for a week or ten days, followed by walking cast for four to six weeks, followed by adhesive strapping for another month or so is in order. In this instance, the adhesive strapping is continued until the pain on reproducing the force of the injury is minimal. Active rehabilitation is necessary at the ankle joint after such a long period of immobilization and may often become quite tedious. There will be persistent swelling of the foot for many weeks. The consequences of this type ligament injury are frequently more severe than that of fracture, not because the injury itself is more severe, but because treatment is so often inadequate. A careful history of that case having painful, recurrent sprains to the ankle will probably reveal an early injury which was treated inadequately.

FRACTURES AROUND THE ANKLE JOINT

This discussion is primarily directed toward the treatment of sprains about the ankle and space will not permit any extensive discussion of fractures since this is, in itself, a very extensive subject. However, it is important to emphasize certain principles for treatment of fractures about the ankle joint. It is essential from the standpoint of function of the ankle to maintain the integrity of the ankle mortice. Good function will not tolerate separation between the tibia and fibula with corresponding widening of the space into which the talus must fit. This must be a primary consideration in the decision as to the best method of treatment of ligament or bone injuries around the ankle. While ordinarily, in fractures about the ankle, the weight bearing portions of the top of the talus and the lower end of the tibia are not involved, it is extremely vital that if these elements are broken they be restored accurately to permit a smooth weight bearing surface. If a fracture of the malleolus has been complete, this must have been accompanied by some degree of dislocation of the talus on the tibia, which implies that there must have been a ligament injury on the side opposite to that in which the break appears. (Fig. 5B) If it is an inversion injury which breaks off the medial malleolus, there is very likely to be an avulsion of the lateral collateral ligament. A very common fracture combination is fracture of the internal malleolus with separation of the tibia-fibular ligament without fracture of the fibula. We must not become so preoccupied with the fracture that we overlook the ligament injury which may often be the more important of the two. The majority of malleolar fractures require open reduction with internal fixation of one, or both, malleoli. It is extremely difficult to re-align the ankle and replace both malleoli by closed reduction. It certainly is easier technically and far safer to carry out an open reduction, reduce the medial malleolus and hold it in place with a metal screw than it is to try to reduce it manually and hold it by pressure of a cast or by some bizarre position of the foot. In the same way, a separation between the tibia and fibula can be held only by a vice-like grip, forcing the two malleoli together. Trying to maintain such a position by plaster is far more difficult and dangerous than to expose the subcutaneous lateral border of the fibula and secure the fibula to the tibia by a single long screw.

Whatever method of treatment is adopted, the most important consideration is that complete restoration of all the elements of the ankle joint must be assured. This must include replacement of all displaced fragments of bone to leave a smooth articular surface, complete restoration of the integrity of the ankle mortice, with no separation between the medial and lateral malleoli, complete restoration of the length and strength of the ligament structures of the joint. If, after completion of the initial treatment, these criteria have not been fulfilled, a re-evaluation of the situation must be made with the adoption of some more adequate method of treatment rather than the acceptance of less than normal function. It is necessary to re-evaluate our methods and since our goal should be complete restoration of the integrity of the ankle joint, only in this way can we eliminate some of our indifferent results and obtain optimum function following even severe injuries.

If all the gold in the world were melted down into a solid cube it would be about the size of an eight-room house. If a man got possession of all that gold—billions of dollars worth, he could not buy a friend, character, peace of mind, clear conscience, or a sense of eternity.

—*Charles F. Banning*

Carcinoma of the Lower Lip*

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ANATOMY

We are all familiar with the external anatomy of the lower lip. The lymphatics of the mucous membrane of the lip pass by lymphatic trunks to either the submental or the submaxillary lymph nodes. These lymphatics rarely cross the midline. The lymphatics of the skin of the lower lip also end in these two groups of lymph nodes, but the median lymphatics occasionally cross to the opposite side.

INCIDENCE and ETIOLOGY

The carcinomas of the mucous membrane and vermilion area are the most common form of cancer of the oral cavity, consisting of 25 per cent to 30 per cent of the total. They occasionally occur in individuals less than 40 but in general the patients are elderly. Etiology is similar to the etiology of cancer elsewhere. It does appear that longstanding exposure to sunshine, wind, and frost is a definite predisposing factor. Pre-existing and/or accompanying leukoplakia is not uncommon.

PATHOLOGY

Most carcinomas of the lower lip develop on the portion of the vermilion border which lies outside of contact with the upper lip. In gross appearance they may be either exophitic, ulcerating, or verrucous. The microsopic pathology is almost always epidermoid carcinoma. Usually they are well differentiated.

MATASTASIS

Matastases are not as early or frequent as in other forms of oral cavity carcinoma. Many times the primary lesion may be quite large without evidence of any matastasis. The most common spread is to the submaxillary nodes of the same side as the lesion. More widespread matastases are found in the cervical nodes, but it is rare to find cervical node matastasis without submaxillary matastasis. They will occasionally matastasize to the opposite side of the neck. Distant matastases have been observed only rarely. The likelihood of matastasis is greater with large and long standing lesions, but not all of these larger tumors have matastasis. The more undifferentiated the tumor, the larger the proportion of matastasis.

DIAGNOSIS

Most of the carcinomas of the lower lip can be recognized clinically. Some of the earlier lesions can be diagnosed only by biopsy. These lesions, the same as carcinoma elsewhere, should have a definite biopsy diagnosis before treatment. Biopsies of carcinoma of the lip should be done with a scalpel, should be sufficiently deep to reach the base, and should include a part of the surrounding normal skin.

DIFFERENTIAL DIAGNOSIS

Few lesions of the lower lip will be confused with carcinoma. Secondarily infected hyperkeratosis and luetic chancre may sometimes be confused. Leukoplakia always presents the problem of whether or not it has undergone malignant change.

TREATMENT

The medical literature abounds with controversial statements as to treatment of carcinoma of the lower lip and its matastases. I am going to limit my remarks to treatment of the primary lesion by means of roentgen therapy. Roentgen therapy will in the great majority of instances definitely cure the carcinoma and contribute the best cosmetic results. The treatment must be used judiciously, and the quality and to some extent the quantity of radiation has to be fitted to the individual case. There is also need for judicious selection of the total length of time over which the treatments are given. I am going to show you a few slides of patients who were treated at the University Tumor Clinic at the Medical College of Alabama to show you what results can be obtained with roentgen therapy of the disease. Roentgen therapy is the treatment of choice of carcinoma of the lower lip, but in certain specified instances surgical treatment may be preferable: 1) with a small lesion and a large mouth, local surgical excision gives enough assurance of control and satisfactory cosmetic results, and is usually more expeditious 2) with very extensive lesions a good cosmetic result may not be possible with roentgen therapy, and plastic repair is necessary. In such instances surgical treatment might be more satisfactory. 3) with small or moderately large lesions which have already matastasized surgical treatment of the primary lesion will allow adequate care of the adenopathy. 4) when there has been previous inadequate roentgen therapy with marked and extensive changes, further radiotherapy is contraindicated.

PROGNOSIS

Prognosis of carcinoma of the lower lip is excellent. The most of the larger series of the cases which have been reported show from 63 per cent to 95 per cent eradication without evidence of local recurrence. Most series show an 80 per cent five-year survival in those who had received no previous treatment. The larger the lesion the poorer the chance of cure but even some of these largest lesions can be cured. If matastasis is present on the initial examination the chance of survival after treatment of the primary and metastatic area is lower but it is still better than other lesions of the oral cavity showing matastasis.

Fundamentals Of Cardiac Resuscitation*

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Sudden cardiac arrest constitutes one of the most dramatic and frequent causes of death during surgery. Approximately one out of each three thousand general anesthesias results in cardiac arrest.[1] Even if, as has been estimated, approximately one-half of the patients developing cardiac arrests are saved, it is likely then that during 1954 between six thousand and eight thousand patients died of sudden cardiac arrests which might have been prevented or corrected. As cardiac arrest is experienced only rarely by the average physician he must be prepared vicariously from the experience of others to meet the sudden reality of cardiac arrest.

Etiology

Most cases occurring during surgery can be traced to overt hypoxia, overdosage or a sensitivity to drugs, or to peripheral vasomotor collapse. Anoxemia is almost always the common denominator though of course there are cases in which the precipitating factors are obscure. Other observers have suggested that hypercapnea with its associated metabolic derangements including increased plasma levels of potassium may be one of the further responsible factors.[2] Certainly the combination of anoxia and carbon dioxide retention (suffocation) is experimentally the best background on which to produce profound cardiac arrhythmias.[3]

Prevention

The most important aspect of prevention is the maintenance of an adequate respiratory exchange at all times to prevent anoxia and the accumulation of carbon dioxide. In addition one should prevent undue anxiety in the patient, maintain the circulating blood volume and probably reduce the number of anesthetic agents administered during any one operation. Corrective steps can be taken at the onset of premonitory signs of cardiac arrhythmia which nearly always appear before actual cessation of the heart. Runs of arrhythmia or a failing pulse are best treated by improving the respiratory exchange of the patient utilizing pure oxygen and by intravenous injections of procaine amide (Pronestal) in the dosage of one to two hundred milligrams. Procaine amide seems to be the best drug available at the moment for reducing excess irritability of the heart and stopping extraventricular contractions. Procaine in dosages which constitute a reliable means of stopping fibrillation or minor arrhymias depresses the rhymicity of the heart sufficiently that after the fibrillation has been stopped long periods of ventricular standstill occur, and further massage again induces fibrillation.[4] Injections of atropine in large dosage, by preventing the release of acetylcholine, will prevent the occasional lethal vagal reflex. The vagovagal reflex has probably been overstressed as, experimentally at least, vagal stimuli cannot cause cardiac standstill in the absence of anoxia and/or hypercapnea.[3].

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Diagnosis

It is not always easy to know exactly when the heart has stopped functioning effectively as a pump. The sudden loss of blood pressure or pulse always puts the burden of proof on the physician to demonstrate that the heart's pumping action is adequate, and these signs when associated with sudden cessation of respiration are pathognomonic of cardiac arrest. Except when a continuous electrocardiographic tracing is being taken, positive diagnosis can be made only by a thoracotomy. Listening for heart sounds, looking for cyanosis, or sticking needles in the chest are all only a waste of valuable time. Unquestionably exploratory thoracotomy has been performed when the heart was found to be still beating with a certain, though limited, degree of efficiency. There can be no justifiable condemnation of this performance, however, but only severest criticism of any hesitation to act under these circumstances, as all these patients with feebly beating hearts can be saved whereas indecision might allow irreversible cerebral changes to occur.

Equipment

The necessary physical equipment should include 1) equipment for artificial respiration including oxygen and endotracheal tubes, and 2) basic surgical instruments for a thoracotomy. There should also be readily available, though not necessarily instantly available, 3) drugs such as procaine amide, epinephrine and calcium chloride with syringes and needles and 4) an adequate defibrillator or electroshock apparatus. However, the absolute basic equipment would consist only of a knife for performing the thoracotomy and an assistant who could give artificial respiration even by mouth to mouth insufflation. It should be remembered however that lives can be lost by a thoracotomy unless the proper physical equipment is available and proper discretion and judgement used when they are not.

Treatment

The basic treatment is composed of three simple elements: speed, pumping the heart and ventilating the lungs. These are aimed at preserving the viability of the individual, particularly the brain, until cardiac function can be restored. The effective circulation of oxygenated blood must be restored within three or four minutes after the onset of cardiac arrest if the outcome is to be successful. Artificial respiration by means of an anesthetic machine utilizing pure oxygen should be started immediately. This is most readily accomplished through an endotracheal tube, and since the patient is completely flaccid the insertion of the tube takes only a few seconds. However, perfectly adequate respiration can be maintained by a tight-fitting face mask and a rebreathing bag or bellows. Mouth to mouth insufflation, especially in infants or children, can be used as a makeshift temporizing measure but will probably not be adequate for any prolonged period of therapy.

Incision

The thoracotomy incision is preferably made in the left fourth interspace just below the breast extending from the sternum to the mid-axillary line. Bleeding is no problem as the heart is not pumping and the incision may be extended into the thoracic cavity with one or two strokes of the knife. A rib spreader is helpful but not necessary as the ribs can be spread sufficiently with the fingers or if necessary by incising one of the anterior cartilages to admit the hand easily. No delay should be allowed in an attempt to achieve asepsis unless such conditions already exist. Infection will seldom be a problem if at the time of closure of the chest adequate hemastasis is obtained and the thoracic cavity is drained with a catheter attached to a water seal system to insure complete expansion of the lung and evacuation of all pleural fluid.

If the abdomen is open, one should likewise open the diaphragm, as intermittent cardiac compression cannot be efficiently performed through the intact diaphragm. It should be remembered that this produces an open pneumothorax and requires positive pressure anesthesia both during the procedure and while closing the diaphragm.

Intermittent cardiac compression should be started the instant it is ascertained that the heart is not beating, beating weakly or fibrillating. This is usually most efficiently performed with the fingers behind and the thumb in front of the heart. However, a large heart may be better pumped by one hand in front and one hand behind or alternately by massage from behind using the sternum as the anterior buttress. The greatest possible blood flow will be obtained at a rate of about 120 compressions per minute, there being no need to wait for cardiac filling.[5] However, as it is not practical to obtain and maintain this rate for any period of time, it is usually preferable to use a rate of approximately 60 to 80 compressions per minute. This will markedly improve the condition of the dilated cyanotic heart, and maintain a satisfactory blood pressure of 60 to 80 millimeters of mercury which assures adequate circulation to the head and to the coronary arteries. It is usually preferable to place the patient in the Trendelenburg position during this procedure.

Very adequate stroke volumes can be maintained without opening the pericardium which by its tough envelope and the lubricating pericardial fluid minimizes trauma to the myocardium. Should the twitchings of ventricular fibrillation be observed, then the pericardium should be opened for the application of electrodes for defibrillation.

Once adequate cardiac compression and respiratory exchange are attained, there is no need for haste, as little or no deterioration will occur during the time required to obtain desired drugs or the defibrillation apparatus. In fact, it is axiomatic that the hypoxic heart cannot be defibrillated or restarted and time must be taken to obtain a pink heart with good tone before attempting therapeutic measures either with drugs of electric shock. It is common for the heart spontaneously to resume a normal rhythm as it becomes oxygenated and tone is restored.

The heart will be found in fibrillation in about 10 per cent of the cases of "cardiac arrest." Persistent fibrillation is best treated by an electric shock applied through two metal electrodes, one on either side of the heart. A 60-cycle alternating current of 110 to 220 volts and at least one ampere of current is required. Less than 0.8 ampere will incite fibrillation while a larger current is effective in stopping the same. An electric shock as brief as one-sixtieth of a second (a single cycle) is adequate to stop all electrical impulse rhythm of the heart and allow a spontaneous rhythm to resume. Certainly the period of current passing through the heart should never exceed .05 of one second. It is quite possible to defibrillate the heart by placing the bare ends of an ordinary electric light wire against metal retractors held on either side of the heart while the current is very quickly turned on and off. I have actually seen a heart defibrillated by using the ordinary Bovie electro-surgical unit, though such is not to be recommended where anything else is available.

Drugs

The various drugs are far less important than adequate ventilation with oxygen and intermittent cardiac compression. Procaine can and does slow the rate of the fibrillating process or even stops fibrillation but likewise so depresses the rhythmicity of the heart that it is rarely if ever indicated. Procaine amide is the perferable drug for reducing cardiac irritability. Epinephrine must be used with great caution as it is extremely dangerous in the presence of myocardial cyanosis or fibrillation. It has its greatest value in increasing the tone of the flaccid sluggish heart and the intra-cardiac dosage should rarely exceed one cubic centimeter of a one to ten thousand solution. Calcium chloride in dosages of 5 cubic centimeters of 10 per cent solution given into the ventricle is of great value in producing the same effect as epinephrine without the dangers.[4] A similar dose of 2 per cent barium chloride has likewise been recommended for the same purpose. These drugs have quite specific action and should be used only when their particular effect is desirable.

Prognosis

The results where the above resuscitative procedures have been made a part of the physician's armamentarium have been extremely encouraging. Dr. Lahey shortly before his death reported survival of ten of thirteen recent cases at the Lahey Clinic.

We have experienced seven cases, one due to pontocaine sensitivity and each of the others occurred during a general anaesthetic. Three occurred during induction of the anesthetic and the other three during a thoracotomy. It was possible to reestablish a normal cardiac rhythm in all with complete recovery in six and death six hours postoperatively in one. Five of the episodes followed a period of recognized inadequate respiratory exchange with attendant hypoxia and probably hypercapnia. Each of these was in complete cardiac standstill, none having demonstrated fibrillation.

Damage to the heart is relatively rare, though the possibility of coronary thrombosis during the period of hypotension is always present. In each of our cases postoperative electrocardiograms showed no change from preoperative tracings. Cerebral complications are the most feared and can lead to complete decerebration. However, severe neurologic sequelae may completely clear during the early postoperative period and hope should not be abandoned for several days. One of our patients, though awake and rational two hours after the thoracotomy, had impaired memory for recent events until the third postoperative day. Likewise her vision was markedly blurred for the first five days and did not become completely normal for two weeks.

We have not felt that an episode of cardiac arrest necessarily militates against the performance of necessary surgery at a later date. One patient had an uneventful one stage pneumonectomy and nine rib thoracoplasty three months after the first anaesthetic episode which ended in cardiac arrest. Another had a successful pleuro-pneumonectomy ten days after the episode of cardiac arrest which had occurred during induction of the anaesthesia.

SUMMARY

Cardiac arrest still constitutes one of the most common causes of death in surgery. Studies on resuscitation have demonstrated that most such episodes can be prevented and when occurring can be successfully treated. The most basic requisite of prevention involves the maintenance of adequate respiratory exchange for the patient. Treatment has, as its primary aim, the immediate reestablishment of an adequate volume of circulating oxygenated blood by intermittent cardiac compression and artificial respiration, until a normal cardiac rhythm can be reestablished.

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A Report on Research at Mississippi State Penitentiary*

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Since the publication of papers on the recent work being done at the Mississippi State Penitentiary and the fact that *Reader's Digest* has sent a reporter down for a summary on this work to be published later by *Reader's Digest,* it is deemed fitting that the doctors in this vicinity be given a firsthand report with a brief summary of the results of this work.

HISTORY

Let us consider a brief history of experimental work previously done with Mississippi state prisoners. In 1915 Dr. Joseph Goldberg, surgeon, U. S. Public Health Service, famous for his work in helping to combat typhoid, yellow fever, diphtheria, and other diseases, came to Mississippi and under the administration of Governor Brewer arranged for twelve convicts to act as human guinea pigs to prove his theory that pellagra, the dreaded 4-D disease at that time the scourge of the South, was due fully to diet. The prisoners that were to participate in this program were offered their complete pardons if they survived the ordeal of eating a controlled diet for six months. The diet consisted of biscuits, fried mush, corn grits and brown gravy, syrup, black coffee, sugar, cornbread, cabbage, sweet potatoes, rice, and collards. Just under six months time, five of the men developed the typical skin eruptions of pellagra. Later being fed a properly prepared diet, these men responded within a few weeks to complete health.

I do not have any knowledge of any further study being done in this prison until recently a series of experiments were undertaken under the direction of Dr. John P. Fox of the Department of Tropical Medicine and Public Health, Tulane University.

I reported to the Society two years ago on the work done in the field of typhus fever in which an immunization for typhus fever wes found by the use of strain Rickettsia of low pathogenicity, and I might add that challenges performed since the initial immunization of these men in January, 1952, have proved these men to be immune to typhus fever.

RABIES

An experiment was begun to study the antibody response to avianized rabies virus known as the Flury strain which had been modified by brain-to-brain passage in day-old chicks to the extent that inoculations produced no disease in dogs and rabbits, and later the strain was further attenuated by chick embryo passage. The Flury vaccine was found to provoke an effective immunity of longer duration and a primary safety greater in that no cases of post-vaccinal reactions of the demyelinating type were observed. It is well known that the Pasteur treatment in any of its currently accepted forms is not satisfactory. Persons who have suffered severe exposure and experienced the consequent short incubation period of the disease are not protected, and treatment also is fraught with real hazards, in the form of demyelinating reactions in the central nervous system which cause paralysis and even death. These reactions occur in approximately 1 to 600 treatments. The simplest approach to obtain a vaccine free from risks would be the use of a viral antigen not primarily derived from nervous tissue hence this election of the Flury strain of avianized rabies virus. This virus had been given without adverse effect to 35 cancer patients by Kaprowski; however, the serological studies were inconclusive. This present experiment consists of the inoculations of 98 persons of varying amounts of 2 to 20 grams of chick embryo material infected with high-embryo passage avianized rabies virus of the Flury strain. For comparative purposes an additional 22 persons were given 2 to 8 grams of normal embryo material and parallel observations were made on 9 persons receiving courses of conventional Pasteur treatment of the Harris type.

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*Presented at the semi-annual meeting of the Delta Medical Society, October 13, 1954.

Except for 8 persons of the Tulane Medical School Staff, the experimental group was recruited from the adult male prisoners both white and colored at the Mississippi State Penitentiary. These men volunteered with no proffered inducement after being informed clearly of the objects of the study and the hazards and inconveniences pertaining to their participation. The experiment was designed to compare the responses to courses of immunization involving from 1 to 4 intermuscular inocula and consisting of from 2 to 8 grams of embryo material as a total dose. The results of this work suggested that while Flury virus did stimulate antibody development as early as the tenth day, the proportion of persons ultimately responding with a detectable level of antibody was directly related to the total dose of vaccine employed. The 2-gram dose was almost completely ineffective. With 4, 6, and 8 grams the proportions responding were 43, 39 and 64 percent, respectively. These results were in sharp contrast with those obtained with conventional Pasteur treatment in which by the fifteenth day strong response had been observed in all 9 individuals. Since these observations suggested a direct relationship between total dose of Flury vaccine and both the proportion of persons responding and the level of the response, the obvious next step was to work with increasing total doses of vaccine. This time only 20 volunteers were recruited and divided into 6 groups of 3 or 4 men each on the basis of the total vaccine given and the number and spacing of the inocula. No relationship was noted between sites of inoculation, number or spacing of inocula, but only to total dose, and results for groups receiving same total dose were combined. With total dose of 12 grams of embryo material, 7 of 14 persons had no measurable antibody titer by 15 days and 4 still had not responded by 30 days. With 20 grams dosage the picture is more encouraging in that 4 of 6 men had responded by 15 days and all by 30 days.

DISCUSSION

These results indicate that Flury virus vaccine in sufficient quantity is capable of uniformly stimulating the development of anti-rabies neutralizing antibodies. The total dosage required, however, is quite large. Even the 20-gram dosage is not equal to the conventional Harris type vaccine. However, the rapidity of response is obviously of importance and in this respect the Flury vaccine of 20-gram dose compares favorably with the Harris vaccine. Four out of six persons receiving the Flury vaccine gave evidence of response in 10 days as compared with only two of nine persons who received the Harris type vaccine.

The present evidence derived from the observation of 98 inoculated persons is not voluminous, but as far as it goes bears out the assumption of safety with respect to the virus itself; however, the actual preparation of crude embryo material which was employed leaves something to be desired. Two instances of anaphylactoid reactions were observed.

AMOEBA

Finally, work is being carried on at the present time to determine a suitable prophylatic for the prevention of amoebiasis along with the study of other intestinal parasites, their prevention and treatment. This work is being sponsored by the Air Force and under the direction of Dr. Paul C. Beavers.

Rural Health – Medicine's Forward Look*

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In some measure, I hope to be able to continue a trend of thought which was established at the Conference on Rural Health last July at State College. Assuming for the moment a speaker's prerogative of digression, let me point out the fact that the lack of continuity in any sort of meeting series, more than any other factor, obscures the objectives of the group, lowers the potential of interest which could be reached, and leaves the conferees certain of just one thing: We went to a meeting, heard some speeches, participated in a panel discussion, exchanged a few unrelated platitudes, and came home none-the-worse but, unfortunately, none-the-better! I'm sure that your committee has wisely and cautiously found ways to avoid this pitfall.

Let me first offer my congratulations to you on this second annual conference in which you are devoting yourselves to an endeavor of the highest importance. It is my sincere wish that each of us will work toward the day when this occasion will bring together many more people and organizations. Frankly, I believe that your good work is making that day inevitable, for the field of rural health is one of the most dynamic activities before medicine and the public.

Truly, we live in dynamic times. During my own medical career, I have witnessed the mortality from certain of the virus and infectious diseases drop to but a fraction of the alarming level that claimed such a high toll scarcely a quarter century ago. Concurrently with the amazing progress in drug therapy, I have lived to witness what my father would have regarded as miracles on the operating table. I have seen infant mortality decrease in our own state, malaria virtually disappear, and tuberculosis become a problem to which a medical and social solution has become apparent. Yet, the surface has only been scratched.

Mississippians in the rural community have benefited highly from these medical advances, for the health problems of a quarter century ago seemed to be all the more acute in the rural areas. We can be deeply thankful that the focus of the problem has shifted: No longer do we ponder "what" can be done, we now face the lesser obstacle of "how" to do it. The dynamic age, the changing face of progress, the problems set aside by solution in the past—all these considerations have prompted my heading whatever useful ideas I can convey to you today as ". . . medicine's forward look."

You're each familiar, I'm sure, with one of the nation's great automobile manufacturer's 1955 theme in which this car is described as having the forward look. The firm's sales message centers about the notion that it has consolidated progress in engineering and design to create the satisfying product of tomorrow. In a sense, the organizations represented in this conference are achieving a similar end in rural health.

For the most part, at least insofar as medicine is concerned, rural health envisions no formal programs. It must be emphasized and re-emphasized that health is an individual responsibility. Communist and socialist dogma would have you believe that personal health is some sort of human right, but no intelligent individual can conceivably hold this view on either moral or rational grounds. Thus, your Mississippi State Medical Association and the American Medical Association point to the fact that their respective activities in rural health are essentially programs of "helping others to help themselves." Most assuredly, the latter concept begins upon the premise of adequate services and facilities, but more important, it fixes these minimums in a climate of free choice and individual responsibility.

The sixth generation of the men who framed the Declaration of Independence and wrote the Constitution of the United States needs no welfare state or paternalistic government to administer health services by compulsion, taxation, and regulation!

Our president of the Mississippi State Medical Association, Dr. McCall, once described American medicine as being distinguished by two features: quality and availability. It seems to me that medicine's forward look in rural health begins upon these two tenets. Now you needn't be an expert in economics, sociology, or even medicine to understand that all the medical progress in the world is of little use if it remains in the laboratory or the great urban centers. We're deeply interested in the complex medical and surgical procedures which are practiced in the university centers, the clinics which have made cities famous, and in the magnificent hospitals devoted to phases of specialization. These are highly necessary keystones in the arches of medical science.

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*Presented at the Second Annual Conference on Rural Health, Jackson, Mississippi, March 31, 1955.

What we here today are most interested in is quality care at the crossroads, in the community of eight hundred souls, on the plantation, the river village, the cattle ranch, and in the fishing hamlet. Our endeavor is empty theory unless John Jones, R. F. D., can avail himself on the same family medical service as the resident of Jackson. This brings forward the topic of the distribution of medical care.

War, economic expansion, population growth, a dynamic society—all familiar and well-understood expressions to you—have exercised tremendous influences upon the distribution of medical care during the past decade. Happily, the influences have been almost exclusively for the better, but it has been inevitable that some difficulties were met along this road of progress.

A few years ago, there emerged the popular notion that there was a shortage of physicians. Actually, there was a maldistribution, for it has been demonstrated that during the immediate postwar years in the late forties a shift of locality of less than four hundred physicians would have eradicated the so-called shortage. I believe that in the absence of expanded medical education and facilities that a shortage would not have been improbable, but fortunately this eventuality never materialized or had to be met. Certain of the less populous states, heavily drained of their human professional resources by war and readjustment from war, faced the threat of such a problem. This plight was amplified by other than optimum distribution of physicians within states; in a few, it had the earmarks of a coming shortage.

Here in Mississippi we attacked the problem realistically and practically. We established our State Medical Education Board program, the details of which are a familiar story to you. Our own state medical association devoted much time and money to a physicians' placement service which we still conduct. At the moment, it would be difficult to find oneself more than fifteen minutes away from a physician in ninety-five per cent of the land area of Mississippi.

I make these assertions not in defense of medicine's position but rather to show you something of medicine's positive attitude in meeting and solving problems which are bound to occur with social change.

As we view with satisfaction the excellent distribution of physicians in Mississippi on this last day of March 1955, we might also ask about the quality of care which these men and women of medicine can give. Let's go back more than a hundred years to May 5, 1847, when two hundred fifty American physicians met at Philadelphia and organized the American Medical Association. Their chief inerest was the improvement of the public health together with the art and science of medicine. Their first real program was devoted to raising the standards of medical education.

Nearly sixty-eight years later this program came to fruition with the adoption of the now-legendary Flexner Report. In 1917, medical schools of the nation were graded according to the excellence of their curricula, and our nation entered upon the present era of quality medical education. This has been not the work of government or institutions; this has been the work and achievement of American physicians—doctors of medicine—actively translating their devotion to your good health into concrete, tangible terms of quality service.

So, what about the ability of the physician in the rural community? His training is the best in the world. For nearly a generation, only the so-called class "A" medical schools have continued, and the chances are that he attended one of these. Did his training stop when he received his medical degree? The answer is an emphatic *no*.

Physicians, more than any other professional group, never stop studying and learning. A doctor's education ceases only with his last breath of this world's air. Through his professional societies at county, state, and national levels, he receives the benefit—and you as patients receive the benefit—of the world's biggest and best single postgraduate education program. Hundreds of authoritative medical journals are published, and the average physician subscribes to or receives at least ten. Unlike the world of business, medicine has no competitive secrets. Once a beneficial drug, technic, or procedure is discovered and verified, it is at once made available to all physicians.

These explanations, I believe, place the terms "availability" and "quality" in their proper perspectives with one possible exception. Here is where the prophets of doom and gloom have had their heyday, the economic aspects of medical care. While it's true that hardly a third—I'd better emphasize that—of your medical care dollar goes to the physician for professional fees, the doctor has been blamed for its cost. During the past decade, Americans have been threatened with schemes to socialize medicine, schemes served up with sugar frosting to cover the bitter, disappointing interior of low quality care. Americans rejected uncompromisingly the false temptation of something-for-nothing. We have seen the staggering costs of government medicine in England. We mustn't forget that all goods and services come only from human productivity; the government has nothing to give except what it takes from the public.

But medical costs, far less on the rising scale of living costs than food, housing, automobiles—are being met in a wonderfully American way through voluntary prepayment health plans. More than one hundred million Americans have provided for minimum essentials of such costs with a less number providing for medical and surgical services. We have become a nation of exponents of the "buy-now-pay-later" philosophy. There is nothing wrong with this system, for credit is a peculiar necessity of capitalism. Thus, there having been created a mass demand for medical service, then it has been inevitable that the aspect of consumer credit enter the picture. I do decry the necessity for this development in the medical economic picture, especially in view of the fact that our nation spends much more money each year on tobacco and alcohol beverages than it does for all phases of medical and dental care!

Despite this paradox of foolish luxury and necessity, there has arrived with an undeniable impact the need for this consumer credit in the medical field. I have presumed to include this somewhat technical economic discussion because I feel that it concerns our rural community with greater urgency than it does our urban centers.

The economists in this audience will tell you that there are only two ways to create consumer credit. One is by advancing goods and services against future purchasing power. This means "buy-now-pay-later." The other is to advance purchasing power against future needs for goods and services, as through insurance. The latter is the heart of our voluntary prepayment health plans. By joining one of these plans, you are advanced a purchasing power which may be used in event of need at an undetermined future time. As the risk of human sickness is spread more evenly among Americans, I believe that the average person will be predisposed to seek quality over price as this focus of emphasis shifts. We in medicine have accepted the challenge to work with the public over and above, I think, our dedication to service. My chief hope is that Mr. Average American will come to value the health of his family above his smoking and drinking habits.

Our great concern to the farm organizations and our rural neighbors are programs of prevention. I am especially elated to be a participant on a medically-sponsored program where farm safety is being studied. Too often, we physicians see first-hand the tragic results of farm accidents. We see momentarily the physical results, but it follows that we are in a unique position to predict the economic tragedy which must inevitably accompany disability and death from a preventable situation. Let me give you assurance of medicine's interest in the vital activity of farm safety. Let me point to the mechanisms and resources of our state medical association which are always yours for the asking as you seek a solution to needless injury and death in the pursuit of this essential vocation.

How could I better summarize than to boil down an essence of what I have tried to convey by stressing medicine's interest in the immediate availability of quality care in the rural community? Through our Committee on Rural Health, we solicit your problems—not that we shall have the ideal solutions. You may rely on our willingness to be of what assistance we can in helping you find that solution. We solicit your counsel and advice, for you who labor in the rural community have that essential knowledge of its needs.

In a few weeks, it will fall my duty to enter the office of President of the Mississippi State Medical Association. I could about sum that statement up by saying that I'll have a new, full-time job for a year, bringing me face to face with many problems. I pledge you my interest, energy, and support as we meet the challenge and seek the goal of the world's best medical care for every Mississippian. We of the medical association are concerned with the practical, useful application of scientific progress in human service, not the least of which is that seventy-odd per cent portion of our citizens in the rural community. That's why I'm glad I could talk with you this morning on rural health—truly medicine's forward look.

Thank you.

Spinal Analgesia in Pelvic Surgery

An Evaluation Based on 200 Cases

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In the past, spinal analgesia has been strongly condemned. A comprehensive review of the literature by Cole reveals that much of the derogatory evidence was compiled on an unsound basis. Cole found that the statistics used were based on some reports that were written as long as 13 years ago, an era when spinal analgesia was in its infancy. A more accurate review of the subject indicates that the operative morbidity and mortality of spinal analgesia parallels that of general anesthesia. The latter having been employed for a much longer time, complications arising from it are less dramatic, and hence are not usually reported, whereas those resulting from spinal analgesia are repeatedly described.

One of the reasons that spinal analgesia has an unfavorable reputation is that it is often administered by the surgeon, who has no skilled assistant to keep constant vigilance over the patient. The untoward reactions from spinal analgesia develop quickly and require immediate attention. When this is available, fatal termination is rare. Early recognition of these reactions is therefore of the utmost importance. In over 10,000 spinal analgesics administered at the Ochsner Foundation Hospital in New Orleans there was only one death which could possibly be attributed to the anesthetic procedure.

Material

In an attempt to evaluate spinal analgesia for pelvic operations, 200 consecutive pelvic operations performed under spinal analgesia between February 22, 1952, and December 3, 1952, were reviewed. These were performed at Ochsner Foundation Hospital by the gynecologic staff. During that time 270 pelvic operations were performed, of which 70 were done under general anesthesia. In 25 of these 70 cases general anesthesia was used because of other associated operations above the pelvic region. Thus, 82 per cent of all purely gynecologic surgery for that period was done under spinal analgesia. General anesthetics are employed for short minor operations, in patients in whom spinal analgesia is definitely contraindicated, and in the occasional patient who refuses it.

Anesthetic Agent

Pontocaine alone was used in 95.5 per cent of the cases. For abdominal procedures, 16 mg. was used and for vaginal procedures, 12 or 14 mg. The pontocaine was mixed with an equal volume of 10 per cent dextrose solution. In five cases (2.5 per cent) the operation was expected to be longer than usual, and 0.25 cc. of neosynephrine was added to the agent. Procaine (100 mg.) was used for brief procedures on three patients. Heavy® nupercaine was used in one patient for pelvic evisceration but after the first hour a general anesthetic had to be used because the analgesia was inadequate. In the only other patient in this series who had pelvic evisceration a pontocaine-neosynephrine mixture was used. The patient was given seconal (R) for sleep, but no supplemental agent was needed. The procedure lasted five hours and fifteen minutes.

Technic of Induction

The method of induction of spinal analgesia was the same for all patients in this series. The spinal was administered by a certified anesthesiologist or by a resident in anesthesiology under the direct supervision of a staff anesthesiologist. During the procedure, a physician anesthesiologist was with the patient constantly. Blood pressure recordings were taken every five minutes, or oftener as needed.

Advantages

Spinal analgesia for pelvic surgery is the choice of the surgeon for several reasons. In the first place, the operator is assured that the patient will be handled expertly. The greatest advantage is the degree of relaxation. This serves a dual role. It makes the surgical procedure technically much easier to perform because of better exposure and it paves the way for a smoother postoperative course. Because of the complete relaxation, the intestines do not have to be manipulated so vigorously and only minimal effort is needed to pack them out of the operative field. Management of patients in the recovery room is made easier because they are awake. Finally, postoperative nausea and vomiting are minimal and the patients may have a regular diet in two or three days.

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Supplemental Medication

The patients in this series who had abdominal operations sometimes required some kind of supplemental medication. Some patients complained of vague pain during exploration of the upper portion of the abdomen. Cyclopropane or nitrous oxide given for a few minutes in anticipation can overcome this. Pentothal given intravenously is a useful adjunct to spinals. In this series it was used 65 times (32.5 per cent). It was given primarily to enable the patient to sleep; in only 10 per cent of the cases was it given for pain. Intravenous administration of morphine and seconal was sufficient to control mild pain in 16 cases.

Contraindications

The generally accepted contraindications for spinal analgesia are hypertension, hypotension, aortic insufficiency, disease of the central nervous system, disease or deformity of the spine, and disease of the skin overlying the site of the injection. It was found in this institution that many of these patients could be handled with less risk under spinal analgesia than under general anesthesia. Only four of the 270 cases reviewed received general anesthesia because of contraindications to spinal analgesia. One had severe heart disease, another had multiple sclerosis, the third was thought to have metastatic carcinoma of the spine, and in the last one there was a history of a positive reaction to spinal fluid serology. The use of spinal analgesia has presented no difficulty in hypertensive patients in this series.

Complications

The most common complication in this series was fall in blood pressure. This was sufficient to warrant treatment in 65 patients. Fall in blood pressure occurred within the first 30 minutes after administration in 54 per cent of these and after 30 minutes in 46 per cent. Almost uniformly in the former group the drop in blood pressure occurred suddenly and can be regarded as a reaction to the analgesic agent. The reduction in the latter group developed more gradually and is considered a sequel to the operative procedure. The treatment for both is the same unless blood is the precipitating factor. In that event, replacement plus drug therapy should be instituted. The intravenous administration of 5 or 10 mg. of methedrine is usually sufficient to overcome the hypotension. It is interesting to note that in those patients whose hemoglobin was borderline, (10.5 to 12.0 Gm.) the response to the vasopressor agent was much slower. Delayed fall in blood pressure without evidence of hemorrhage occurred in one patient while still in the recovery room. Whether this was a reaction to the analgesic agent cannot be determined, but the blood pressure responded well to the intravenous administration of 5 mg. of methedrine. Dwyer attributed this type of sudden drop in blood pressure to segmental paralysis of vasoconstrictors with a temporary increase in the vascular bed.

The next most discussed complications to spinal analgesia are the neurologic ones. The reason for this is obvious since the unfortunate victims are grim reminders of the incident. There is one report of six cases of neurologic complications occurring in one institution within a six-month period. The analgesic agent used was not the same in each case, and all were from different lots. The resulting conditions included radiculitis, cauda equina syndrome, ascending myelitis, adhesive arachnoiditis, and meningo-encephalitis. In our series there was one case of traumatic radiculitis but recovery was uneventful. In over 10,000 spinal analgesics administered at Ochsner Foundation Hospital covering a span of seven years, there has been no reported case of permanent neurologic change.

A controversial subject is that of postspinal headaches. The literature is full of reports with incidences ranging from 5 per cent to 35 per cent or more. Cann reported a reduction in the incidence of postspinal headache from 30 per cent to 5 per cent when he changed from a 15 to a 26-gauge needle. Andros and associates reported an incidence of 20.3 per cent; however, 14.8 per cent of these were mild requiring only aspirin for relief. The remaining 6.5 per cent, which were severe enough to limit the patients' activities and require stronger medication, probably represent the "spinal headache."

Postspinal headaches occurred in 5 per cent of the patients in this series. This low incidence is due to several factors. In the first place, the power of suggestion is eliminated. The patient is never asked if her head hurts. If she has the typical headache, she will complain bitterly and it will follow as definite pattern, severe when standing, absent when recumbent, and resistant to drug therapy. Moreover, when the type of anesthetic to be employed is discussed with the patient preoperatively, the word "spinal" is avoided; instead, it is referred to as a lumbar block, thus eliminating another source of suggestion. Use of a 22-gauge needle decreases the amount of spinal fluid seepage, which, according to Wechsler, is the etiology of this complication. Lastly, all patients are well hydrated in the postoperative period when headaches most frequently occur.

Two other complications that have often been attributed to spinals are adynamic ileus and phlebothrombosis. Each of the two conditions occurred in 1.5 per cent of our cases. This parallels the generally reported postoperative incidence of the complications, and should not be considered due solely to the analgesia.

Summary

A series of 200 consecutive pelvic operations performed under spinal analgesia, representing 82 per cent of all gyneeologic surgery, from Feb. 22, 1952 to Dec. 3, 1952 performed at Ochsner Foundation Hospital, was reviewed. Pontocaine, 12 to 16 mg. in an equal volume of 10 per cent dextrose, was used in 95.5 per cent of cases. Neosynephrine, 0.25 cc., was added when the operation was expected to be prolonged. The anesthetic was administered by a physician in each instance under direct supervision of a certified anesthesiologist. Contraindications were patient's refusal, central nervous system disease, spinal disorders and severe cardiac disease. A supplemental anesthetic was used in 40 per cent of cases, but mostly at the patient's request. Only 10 per cent required it for pain.

Spinal is the anesthetic of choice for the gynecologic surgeon, because of excellent relaxation and uncomplicated postoperative course. Blood pressure drop responds well to vasopressor drugs. Early recognition of fall in blood pressure is important. The only neurologic complication in the present series was radiculitis in one patient. Headaches occurred in only 5 per cent of cases.

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4. Cole, Franks: A defense of spinal anesthesia. Anesthesiology 13:407-415 (July) 1952.
5. Dhuner, K. G.: Nerve injuries following operations; survey of cases occurring during 6-year period. Anesthesiology 11:289-293 (May) 1950.
6. Dwyer, C. S.: Immediate untoward reactions to spinal anesthesia. Am. J. Surg. 81:172-177 (Feb.), 1951.
7. Greenhill, J. P.: Shall spinal anesthesia be used in obstetrics? Anesthesiology 11:283-288 (May), 1950.
8. Lorhan, P. H., and Merriam, Wallace: Spinal anesthesia; analysis of causes of death in 716 cases using spinal anesthesia. Surgery 31:421-428 (March) 1952.
9. Wechsler, I. S.: A textbook of Clinical Neurology, 6th. ed. Phila., Saunders, 1947 p. 88.
10. Woltman, H. W.: Postoperative neurologic complications. Wisconsin M. J. 35:427-436 (June) 1936.

THE AMERICAN INSTITUTE OF DENTAL MEDICINE

The next Annual Meeting of the Institute will take place at the Desert Inn, Palm Springs, California, October 23 to 27, 1955. The faculty will consist of:

Maury Massler, D.D.S., M.S., University of Illinois, Chicago, Valy Menkin, M.D., Temple University Medical School, Philadelphia, Pennsylvania; Hans Selye, M.D., University of Montreal, Montreal, Canada, Reidar F. Sognnaes, M.D., Ph.D., Harvard School of Dental Medicine, Boston, Massachusetts: Wendell L. Wylie, D.D.S., University of California, San Francisco, California.

All seminar lecturers will participate in a round table forum discussing the application of their subject to the practice of dental medicine. Applications and full information may be secured from the Executive Secretary, Miss Marion G. Lewis, 2240 Channing Way, Berkeley 4, California.

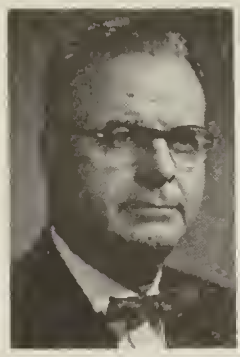
STATE PROGRAM

EIGHTY-SEVENTH ANNUAL SESSION OF THE MISSISSIPPI STATE MEDICAL ASSOCIATION

Dr. McCall

Dr. Bailey

Buena Vista Hotel, Biloxi, Miss.
PRESIDENT
Cummings H. McCall, M.D.,
Gulfport
PRESIDENT-ELECT
S. Lamar Bailey, M.D.,
Kosciusko
SECRETARY
George E. Twente, M.D.,
Jackson
GENERAL CHAIRMAN
B. B. O'Mara, M.D.,
Biloxi
CONVENTION HOST
Charles D. Taylor, Jr., M.D.,
Pass Christian



Dr. O'Mara

Dr. Taylor

SCIENTIFIC SECTIONS

SECTION ON PEDIATRICS

Hurricane Room

May 10, 1955, 1:00 p.m.

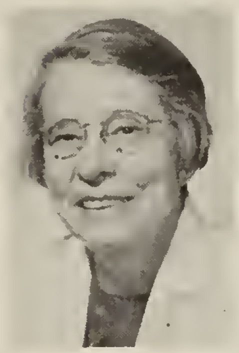
Byron Alexander, M.D.

Jackson, Chairman

I

"Common Orthopedic Abnormalities of Infancy and Early Childhood"
Thomas H. Blake, M.D., Jackson

II



"Recent Advances in Diagnosis and Treatment of Rheumatic Heart Diseases in Children"

Katharine Dodd, M.D., Little Rock, Arkansas

III

"Management of the Hyaline Membrane Syndrome"
Wayne Yeager, M.D., Moss Point

IV

"The Time Factor in Non-infectious Diseases of the Newborn"
Jo Newell Robinson, M.D., Columbus

V

"Paving the Way for Accepting the Inevitable"

A. Ashley Weech, M.D.,
Cincinnati, Ohio

SECTION ON PREVENTIVE MEDICINE

Fiesta Room

May 10, 1955, 1:00 p.m.

Agnes Burt Caraway, M.D.,

Jackson, Chairman

THE PROGRAM

I

"Immunization"
Henry C. Ricks, Jr., M.D., Jackson

II

"Office Management of the Pre-eclamptic"
Blanche Lockard, M.D., Jackson

III

"Toxoplasmosis", Marion M. Brooke, Sc.D., Atlanta, Georgia

IV

Infectious Hepatitis"
Martin D. Hicklin, M.D., Montgomery, Ala.

PUBLIC NIGHT

May 10, 1955, 8:00 p.m.

Memorial Service and Necrology — George E. Twente, M.D., Secretary

Distinguished Service Oration — E. LeRoy Wilkins, M.D., Past-President Mississippi Medical Association

President's Address — Cummings H. McCall, M.D., President

Address — Walter B. Martin, M.D., President, American Medical Association, Norfolk, Virginia

SECTION ON MEDICINE

Hurricane Room

May 11, 1955, 9:00 a.m.

L. T. Carl, M.D., Jackson,

Chairman

THE PROGRAM

I

"Coexistent Cholecystic and Cardiac Disease"
James B. Blaine, M.D., Hazlehurst
Discussion: O. G. Eubanks, M.D., Crystal Springs

II

"What's New in Dermatology"
James Grant Thompson, M.D., Jackson

III

"Some Plans and Hopes for the Department of Medicine in the Four-Year Medical School"
J. R. Snavely, M.D., New Orleans, Louisiana

IV

"Six Years' Experience with Adult Patients in the State of Mississippi"
William K. Purks, M.D., Vicksburg

V

"Bronchogenic Carcinoma"

Earl B. Wert, M.D., Mobile, Alabama

SECTION ON SURGERY

Hurricane Room

May 11, 1955, 1:00 p.m.

Archibald C. Hewes, M.D.,

Gulfport, Chairman

THE PROGRAM

I

"Intestinal Obstruction"

M. L. Michel, M.D., New Orleans, Louisiana

II

"Acute Colon Obstructions"
Bedford F. Floyd, Jr., M.D., Gulfport
Discussion: Edward C. Hamilton, M.D., Gulfport

III

"Injuries of the Hand"
J. T. Davis, M.D., Corinth
Discussion: A. Dabney Hurt, M.D., Corinth
R. E. Shands, M.D., New Albany

IV

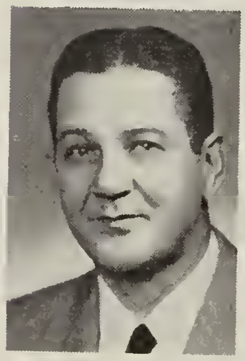
"Surgical Emergencies in the Infant Abdomen"
Raymond S. Martin, Jr., M.D., Jackson
Discussion: Paul B. Daron, M.D., Jackson

V

"Technical Considerations in Surgery of Stomach, Duodenum and Pancreas"

Henry William Scott, Jr., M.D.,
Nashville, Tennessee

SECTION ON OBSTETRICS AND GYNECOLOGY



Hurricane Room

May 12, 1955, 9:00 a.m.

W. L. Stallworth, M.D., Columbus, Chairman

THE PROGRAM

I

"Changes in the Blood Clotting Mechanism During the Third Trimester of Pregnancy"
Arthur A. Caire, Jr., M.D., New Orleans, Louisiana

II

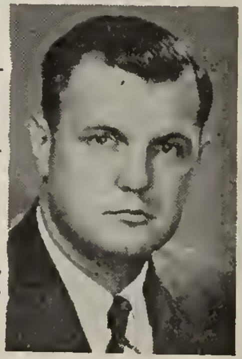
"A New Concept of the Cause of Phlebothrombosis"
Guy T. Vise, M.D., Meridian
Discussion: Carl E. Lewis, M.D., Jackson
R. A. Street, Jr., M.D., Vicksburg

III

"Acute Gastric Dilation in Obstetrics and Gynecology"

Theo. F. Middleton, M.D., Mobile, Alabama.

Discussion:
Carter O'Ferrall, M.D., Jackson,
E. L. McCafferty, M.D., Mobile



IV
"Observations in the Management of Primiparous Breech at Term"
Walter S. Ridgeway, M.D., Jackson
Discussion: James Newton, M.D., Greenville
John F. Lucas, M.D., Greenwood

V
"Surgical Consideration of Pelvic Disease"
Thomas Wolford, M.D., Columbus
Discussion: Gus Rush, Jr., M.D., Meridian

SECTION ON EYE, EAR, NOSE, AND THROAT

Fiesta Room

May 12, 1955, 9:00 a.m.

J. C. Pegues, M.D., Greenwood,

Chairman

THE PROGRAM

I
Chairman's Address
Dr. Pegues

II
"Recent Advances in the Physiology and the Biochemistry of the Eye"
Oscar Dahlene, M.D., Hattiesburg
Discussion: Earl W. Greene, M.D., Hattiesburg
Charles E. Clark, M.D., Natchez

III
"Tonography—Its Role in the Diagnosis and Management of Glaucoma"
Lyne S. Gamble, M.D., Greenville
Discussion: J. B. Rogers, M.D., Oxford
F. E. McCullough, M.D., Jackson

IV

"Stapes Mobilization for Restoration of Hearing in Otosclerosis"

Harold G. Tabb, M.D., New Orleans

V

"The Tonsil and Adenoid Problem"

Lawrence R. Boies, M.D., Minneapolis, Minnesota

WOMAN'S AUXILIARY TO MISSISSIPPI STATE MEDICAL ASSOCIATION

Mrs. Snelling
President

Mrs. O'Ferrall
President-elect

MONDAY, MAY 9

Pre-convention Board Meeting—Buena Vista, 4:30 p.m.

TUESDAY, MAY 10

8:30

Registration—Chairman of Registration, Mrs. H. J. Schmidt, Biloxi

9:30

Opening session, The Deck, Buena Vista Hotel, Mrs. Murdock Murph Snelling, presiding.

Invocation — Mrs. A. Street, Vicksburg

Membership Pledge — Mrs. C. H. McCall, Gulfport

Address of Welcome — Mrs. A. C. Hewes, Gulfport

Response — Mrs. W. H. Anderson, Booneville

Presentation of President-elect — Mrs. Carter O'-Ferrall, Jackson

Introductions — National President-elect, Mrs. Mason Lawson; Southern President, Mrs. Louis Hundley

Report from National Convention — Mrs. Lamar Bailey, Kosciusko

Report from Southern Convention — Mrs. L. A. Posey, Jackson

Adjournment

12:30 p.m.

Luncheon, Edgewater Gulf Hotel, Mrs. James T. Thompson, Moss Point, chairman

Mrs. Snelling presiding Honoring Mrs. Mason Lawson, President-elect of National Medical Auxiliary and Mrs. Louis Hundley, President of Southern Auxiliary.

Invocation — Mrs. James T. Thompson, Moss Point

Introductions — All ladies at speakers table ending with Mrs. Hundley and Mrs. Lawson. Greetings from Southern. Greetings from National. Style Show following luncheon at the Hotel. Mrs. Bedford Floyd, Gulfport, chairman.

WEDNESDAY, MAY 11

7:30

Past-Presidents' Breakfast, Sun Room

8:30

Registration, Mrs. H. Schmidt, Biloxi, Chairman

9:00

General Session, The Deck, Buena Vista

Invocation — Mrs. Eldon Bolton
Greetings from Dr. C. H. McCall, President, Mississippi State Medical Association.
Greetings from Dr. Lamar Bailey, President-elect.
Memorial Service, Mrs. W. H. Anderson
Roll Call
Reading of Minutes
Recommendations from the Board — Secretary
Business — Any old, any new
Report of Nominating Committee — Mrs. Lamar Bailey, Kosciusko
Election of Officers
Appointment of Delegates to AMA
Credentials and Registration — Mrs. Harry Schmidt, Biloxi
Courtesy Resolutions — Mrs. Thomas Sufley, Jackson
Installation of New Officers — Mrs. Mason Lawson, National President-elect
Presentation of gavel and President's Pin to Mrs. Carter O'Ferrall
Adjournment
Post-convention Board meeting, Mrs. O'Ferrall presiding.

NATIONAL MEETING

The thirty-second annual convention of the Woman's Auxiliary to the American Medical Association will be held in Atlantic City, New Jersey, June 6-10, 1955, at Hotel Haddon Hall. National committee meetings will be held on Saturday and Sunday, June 4 and 5. Registration will start on Sunday, June 5, at twelve o'clock.

Mrs. David B. Allman will be chairman of the committee on arrangements.

A tea honoring Mrs. George Turner, president, and Mrs. Mason G. Lawson, president-elect, will be held Monday, June 6. All doctors' wives are cordially invited to attend.

MISSISSIPPI PEDIATRIC SOCIETY

Buena Vista Hotel
Biloxi
Monday, May 9, 1955 — 1:30 p.m.

LOUISIANA - MISSISSIPPI OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY

Edgewater Gulf Hotel
Edgewater Park, Mississippi
May 13-14, 1955

THE MISSISSIPPI EYE, EAR, NOSE, AND THROAT ASSOCIATION

Edgewater Gulf Hotel
Thursday, May 12, 1955 — 2:30 p.m.

SUMMER SCHOLARSHIPS FOR SPECIALIZED TRAINING IN CEREBRAL PALSY

Physicians, therapists, educators, and other professional workers may qualify for scholarships for special study in cerebral palsy and will receive allotments for tuition and maintenance at recognized training centers for a minimum of three months. Grants vary between $100.00 and $750.00. Applicants who receive awards will be expected to work in some bona fide program for the cerebral palsied for at least one year upon completion of their training and must sign a written agreement to this effect.

Although these scholarships originally were intended for course of three-months duration, applications will be considered this spring for summer workshops and sessions emphasizing work with the cerebral palsied.

Candidates must have completed the required program of training in their own professional fields, and must be fully certified members in good standing of their own professional associations.

Applications for scholarships may be secured from the Training and Employment Service of the National Society for Crippled Children and Adults, or the Mississippi Society for Crippled Children and Adults. Complete data about each candidate's background and any supporting material should be submitted with the application. In addition to the application each candidate must submit a letter describing his interests and objectives in wanting to work with cerebral palsied persons.

For further information address: Training and Employment Service, National Society for Crippled Children and Adults, Inc., 11 South La Salle Street, Chicago 3, Illinois.

OTOLARYNGOLOGY ASSEMBLY

The Department of Otolaryngology, University of Illinois College of Medicine, announces its annual assembly, September 19 through October 1, 1955, in two parts:

Part I. September 19 through September 24, 1955, will be devoted to surgical anatomy of the head and neck, fundamental principles of neck surgery and histopathology of the ear, nose, and throat. This week will be under the personal direction of Maurice F. Snitman, M. D.

Part II. September 26 through October 1, 1955, will be devoted entirely to lectures and panel discussion of advancements in otolaryngology. The chairman of this section will be Emanuel M. Skolnik, M. D.

Registration is optional for one or both weeks.

GEOGRAPHIC FULL-TIME EMPLOYEE S OF THE SCHOOL OF MEDICINE

The third of a series of articles pertaining to Mississippi's four-year medical school.

The following letters were written to the Dean of the School of Medicine, University of Mississippi.

As I look over your proposal for compensation for faculty, I am convinced of its essential soundness. Not only is it probably inconceivable that the legislature and the governing board would authorize adequate full-time salaries for your clinical staff members, but even if they did so the disproportion between the full-time salaries paid the medical staff and that paid the other members of your faculty would be so great as to create a nearly impossible situation for the president, the governing board, and everyone else.

I am convinced that the geographical full-time philosophy, along with total income limitation, is the only answer for a situation such as this is, just as it is for our situation. We have been operating with some modification of this program, but essentially the same, for several years now, with the full understanding and friendly agreement of the Kansas Medical Society. The thoughtful members of the Medical Society understand that this is the only practical way to staff adequately a modern medical school.

As a matter of fact, I would have to admit that this proposed program is even better than ours, in that we do not have a specific salary limitation. I just cannot understand how thoughtful physicians could take exception to your proposal.

Franklin D. Murphy, Chancellor

Dr. Franklin D. Murphy, now Chancellor of the University of Kansas, was the Dean of the Kansas School of Medicine for a number of years. He is also a member of the Council on Medical Education and Hospitals for the AMA. This Council will sometime have to approve or not approve our school for accreditation in the U. S. A.

As you know we have a considerable number of geographic full-time employees in our College of Medicine. By the term "geographic full-time" we mean to imply that the employee's office is in a University building, and that his space, utilities, and supporting personnel are supplied to him by the University. It is our practice to pay a base salary to an employee and to allow him to supplement this salary with a new income derived from private patients.

Requiring our so-called full-time men to earn part of their compensation from private practice serves a very useful purpose in our judgment. We feel that it is necessary that one of our senior teachers shall maintain his contact with the conditions of private practice and prove his efficiency in this area. By doing this he becomes a much more effective incentive to the ideals of the undergraduate students and he becomes also a more effective leader of his supporting staff.

I believe that you will find the geographic full-time teacher an effective and almost necessary part of your faculty.

O. W. Hyman, Ph. D.,

Dr. O. W. Hyman is now Vice-President of the University of Tennessee and Dean of the School of Medicine. He is the Senior Dean in terms of years of service in the U. S. A.

I am convinced in my own mind that the geographic full-time student arrangement is sound and that it can work very satisfactorily. It is important that both the medical profession and the University Medical School act in good faith at this stage of the game and make their arrangements accordingly. There will have to be some "give and take" but it should work out quite satisfactorily if there is an agreement at the beginning as to just what the program will be.

Edward L. Turner, M.D.

Dr. Edward L. Turner is now Secretary of the Council on Medical Education and Hospitals for the AMA. He came to the AMA from the deanship at Seattle, Washington, and has had years of experience with medical administrators and education.

In presenting the program to the legislature, I stated to them that the services of the top men, who of necessity would have to be experts in their line, would be available to the people of the state through their family physicians for the highly specialized work and that these experts would receive fees, a part of which would go toward their salaries and all over a stated amount would be turned in to the hospital and medical school for whatever purposes the Board saw fit to use it. This contemplates taking care of the people who have been going out of the state for such expert services and, also, contemplates the family physicians going with their patients to the hospital and watching the examinations and prescribed treatment which would be a great educational value to the medical profession of the state. I am glad to see the Board has set up the program on this basis for to do otherwise would be violating the confidence of the legislature.

Henry Boswell, M.D., Sanatorium

I know the plan of compensation which the University of Mississippi Medical School has adopted for its full-time staff, namely that of "geographic full-time" with the employee receiving a basic salary, and being permitted to supplement this salary by doing a restricted practice with private patients. This has my full endorsement. I feel that this is the best way to carry on a successful medical school.

John C. Culley, M.D., Oxford

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

Entered as second-class matter, January 19, 1926, at the post office at Booneville, Miss., under the Act of March 3, 1870. Annual subscription, $3.00.

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W. H. ANDERSON, M.D. .... Editor-in-Chief
MILDRED P. ANDERSON .... Assistant Editor
David E. Guyton, Blue Mountain College .... Poet

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Address all material for publication to W. H. Anderson, M. D., 104 Hospitality Street, Booneville, Mississippi.

EDITORIALS

STATE MEETING

The state medical meeting is very important and every doctor should do his best to attend. The Mississippi State Medical Association meets this year at the Buena Vista Hotel in Biloxi, May 10, 11, 12. A fine scientific program has been arranged. A visit to the Coast will be good. At the state association the business of organized medicine is transacted. There doctors come to know and to understand each other and cultivate the fraternal spirit. There the doctor finds refresher scientific knowledge to help him keep up. Organized medicine renders a fine service.

Every doctor owes some of his time to organized medicine and a serious obligation to practice good citizenship. Herein lies his best public relations avenue to lay confidence—serving his public as an everyday citizen. It takes physical stamina, scientific training, understanding and united effort to render our best to the people whom we are duty-bound to serve.

The practitioner of the early days tried to be everything to every person, and he did well with the undertaking. Now the medical service unit has expanded to include the doctor, the nurse, the dentist, the pharmacist, the hospital and the should be no exemption of one of them to give the should be no exemption of one of them to give same personal interest to the sick patient that the family doctor strived to give so many years. The medical association is the best place to coordinate our duties and responsibilities and efforts, as well as to learn what's new in medicine. To attend the state meeting is the urgent duty of every doctor. Let us make the coming meeting the biggest we have ever had.

OURS ONE OF SEVEN

In the near future the two two-year medical schools of the University of Mississippi and of West Virginia will become four-year schools. And along with these there will be five brand new four-year schools open their doors. We were not the very first to make up our minds that our state should have a four-year school, but we were among the first and we did all we could to bring it about. The medical profession in our state was badly divided on this question for years, and even now we have some who think the four-year school was an unwise undertaking. But the fact that five other new schools are offering to train young M.D.'s would seem to indicate that our state recognizes the need and opportunity of going to a four-year school. Time will further indicate the wisdom or the mistake of the four-year school.

This journal and its editor waged a campaign many years ago for the per capita distribution of funds for the indigent sick. The profession was somewhat divided on this question for a long time. The plan has served well and fits into the Hill-Burton system of hospitals like a hand in a glove. Of course the plan now needs improving. The price allowed per day for patient needs to be increased to keep up with inflation also.

This journal has taken an active stand for public health in our state, helping every way to make it more efficient. Many of our doctors over the years have not been too strong for public health. We think, however, that every member of the profession feels a pride in the outstanding public health service our state now has, largely due to the able work of Felix J. Underwood.

There seems to be some difference of opinion on the plan for the faculty of our four-year medical school. We believe that the Trustees of Institutions of Higher Learning want to act wisely. It is wholesome to hear the different views on this subject and we are glad, as always, for any doctor to present his views on this or any other pertinent subject of the day. There is no doubt that the members of the medical profession and our people want a ranking medical school, the best that our state can afford. On this important subject let us think soberly and act in the best interest of all. We have not heard all the questions asked on the issue and we have not heard all the answers, but we believe the profession as a whole is open to the truth. Your views are welcome.

OUR PROBLEM

The indications are that this year will see the beginnings of the end of polio. This being true, what a wonderful victory! The greatest challenge now is victory over cancer. The campaign is on to raise funds to keep up the fight. We have terminal cases which must have relief in their last days in the name of humanity. We have a big group who are not even cancer conscious. We have another group who have cancer phobia. The cancer problem is a stupendous one. There is much education left to be done in the medical profession. Many busy doctors in the rural communities have not had the opportunity or determination to keep posted as well as they should. Yet they constitute the detection vanguard. The cancer institutes over the state can do much to educate the profession and the laity as well. If the doctors are informed and resolve to do a conscientious job of early screening, and the public is educated to know the signals and to act sensibly, almost fifty per cent of cancer can be cured.

The exact cause of cancer is yet a mysterious secret, and we must not let up on research. The general practitioner in his office might hold the critical open sesame to discovery. He must be on the alert for suspicious indications where the greatest incidence of the disease occurs—uterus and breast in women, lung and prostate in men—and educate his patients to periodic examination. Let us concentrate our efforts to defeat this deadly destroyer.

GARRISON TO REJUVENATE SMA SECTION

Because the Section on Pediatrics of the Southern Medical Association has lost some of its momentum, we understand that Dr. Harvey Garrison, Sr., has been asked to take charge and put this section back into its old stride.

Pediatrics is a most important field of medicine. It has a lot to do with life expectancy. A healthy baby and a healthy child make a healthy man. Dr. Harvey Garrison has done a fine work in the field of pediatrics in our state. We owe him a debt of gratitude for his pioneering leadership. He has rendered outstanding service in the field of organized medicine in Mississippi, in the Southern, and in the American Medical Association. He is a great organizer, is able in his field, has medical integrity and practices Christian citizenship.

The Section on General Practice in the Southern may need some boosting. It is not an old section, but had healthy beginnings for one of the best sections of the SMA. Our state GP organization can lend a hand to keep up the standard of this section in the Southern.

FIFTY-YEAR CLUB

We look forward to a good turnout this year at the state meeting of the Fifty-Year Club. Mississippi has a fine club. Dr. J. K. Avent has been the generous host for the luncheon for several years. This year Dr. LeRoy Wilkins and his brother, William, have asked for this honor and the luncheon is to be given as a memoriam to Dr. T. M. Dye. This is a fine gesture on the part of the Wilkins brothers. Every fifty-year man who can will want to be present and participate in honoring the memory of one of one of the most beloved men who ever served the association.

YOUR VOICE

The *Mississippi Doctor* has striven consistently to serve the medical interests of the profession and the people for more than thirty years, and it expects to put forth its best efforts for the remaining four and a half years of private operation. Its pages have been and will continue to be open to every member of the MSMA.

On to Biloxi, the state Medical Association, May 9, 10, 11.

Deaths

DR. RALPH REAGAN

Dexter community lost a leader in the death of Dr. Ralph Reagan. Dr. Reagan was 77 years old and had lived in that community since his birth when that was a part of Marion County. He died at Tylertown, February 22.

Funeral services were held at the Crystal Springs Baptist Church, with his pastor, the Rev. J. C. Penson, officiating, assisted by the Rev. Charles Heine, pastor of Baker Baptist Church, Baker, La. Special Masonic rites were conducted at graveside.

Dr. Ragan was born in Marion County, April 18, 1877. His parents were Thomas J. and Suphronia Stewart Reagan. He is survived by his wife, Mrs. Montara Hobgood Reagan; one son, Myron Reagan of Augusta, Ga.; three daughters, Mrs. Dixie Winborn, Baker, La.; Mrs. Alice Oliver, Athens, Ga.; Mrs. Mary Massey, Lyon, Miss.; and nine grandchildren.

Dr. Reagan was a member of the Crystal Springs Baptist Church and took active part in church work. He was a graduate of Tulane Medical School. He started practicing medicine about 1909. He spent his boyhood days around old China Grove, and attended church there.

He was an outstanding citizen, always active in community and county progressive movements and was well and favorably known in this part of the state.

DR. L. H. HIGHTOWER

Dr. Lewis Henry Hightower, physician of Itta Bena, died March 7 at the Greenwood Leflore Hospital after three weeks' illness.

Dr. Hightower, who was 82, was born in Carroll County. He was a graduate of Vanderbilt University College of Medicine and began practice at McCarley and Holcomb 56 years ago, a short time before moving to Itta Bena.

On May 20, 1948, the town of Itta Bena observed his anniversary of 50 years' practice in the community. He was showered with gifts and attention. More than 1,000 people gathered at the community house for the occasion.

He was a member of the Methodist Church and took a leading part in its activities and was a member of the Methodist Men's Club. Dr. Hightower was a Mason, former Rotarian and had served as alderman of Itta Bena. He was a member of the Delta, Mississippi and American Medical Associations and was honored as a member of the Fifty-Year Club.

In 1903, he married the former Miss Remer Mecklin. Besides his wife, he leaves a son, Dr. J. R. Hightower of Itta Bena; four daughters, Mrs. Ralph Walker and Mrs. Gilbert Bayles of Itta Bena, Mrs. Garvin Davenport of Monmouth, Ill., and Mrs. Salter Butler of Jonestown; a sister, Mrs. Mattie Kent of Selma, Ala., and 11 grandchildren.

DR. J. C. McDANIEL

Funeral services for Dr. Joseph Columbus McDaniel, 82, prominent physician of York, Ala., were held at the York Presbyterian Church, with the Rev. Fred Ingle officiating, assisted by the Rev. J. M. Partridge.

Dr. McDaniel, who had been ill several weeks, was a member of one of this area's pioneer families and was widely known, having practiced medicine here for the past 51 years. Ill health caused him to curtail his activities some time ago.

The doctor was graduated from the University of Alabama Medical College in Mobile, and had been identified with medical associations in East Mississippi and West Alabama over a long period.

Surviving are his wife, Mrs. Zoe Edmonds McDaniels; two sons, Lawrence W., New York City; and Leonard E. McDaniel, Livingston; two daughters, Mesdames Ed H. Andrews, Gadsden; and W. Z. Ray, Meridian; sister, Mrs. Ella C. Harmon, Montgomery; brother, Dr. Guy L. McDaniel, Henry, Tenn.; and nine grandchildren.

Dr. McDaniel was a member of the Sumter County, Alabama, and Southern Railway Surgeons Medical Associations, and York Presbyterian Church.

DR. E. E. BUSBY

Dr. E. E. Busby, prominent Brookhaven physician, died in Baptist Hospital in Jackson early March 16, following two weeks' hospitalization.

Dr. Busby was a prominent Lincoln County physician.

The funeral was held the following day at the First Methodist Church, Brookhaven, with interment in the Bogue Chitto cemetery.

Dr. Busby is survived by his wife, Mrs. Florence Ferguson Busby; two sons, E. E. Busby, Jr., Jackson, and Dr. C. L. Busby, employed by the state at Whitfield; a brother, Jessie Busby, Bogue Chitto; and a sister, Miss Daisy Busby, also of Lincoln County.

Dr. Busby was a graduate of Mississippi Medical College, Meridian, class of 1909.

DR. C. D. PRITCHARD

Services for Dr. Clarence D. Pritchard, formerly of Lambert and Marks, died at his home at Russellville, Ala., were held at the Baptist Church in Russellville with the pastor, Rev. George Jackson, officiating. Burial was in the K. P. Cemetery in Russellville.

Dr. Pritchard was born and reared at Oxford. He was 45. He was a graduate of the University of Mississippi and of the University of Tennessee Medical School in Memphis. After serving his internship at the Baptist Hospital in Memphis he moved to Lambert where he was associated with Dr. J. P. Walker at the Lambert Hospital. He and Dr. Walker opened offices in Marks and Darling and built a clinic at Marks.

Dr. Pritchard entered the Army in 1940 and served several years overseas after which he returned to Marks and practiced medicine before moving to Russellville, where he was associated with Dr. Blondy S. Henry and his brother, Dr. T. R. Pritchard at the Franklin County Hospital and their clinic. He was a Baptist, a Boy Scout leader, a member of the Franklin County Medical Association, the Alabama Medical Association, and the American Medical Association. He was a member of the Russellville Lions Club.

He leaves his wife, Mrs. Vivienne Taylor Pritchard; a son, Charlie Pritchard; a daughter, Ann Pritchard; his parents, Mr. and Mrs. D. A. Pritchard of Oxford; a brother, Dr. T. R. Pritchard of Russellville; three sisters, Mrs. Robert A. Smith of Marks, Mrs. Ed Anderson of Lambert, and Mrs. A. H. Russell of Oxford.

It is easy to find fault; appreciation requires intelligence and character.

Trust men and they will be true to you; treat them greatly and they will show themselves great.

Successful Resection of Aorta for Occlusive Disease with Restoration by Aortic Homograft

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Jackson, Miss.
and
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The purpose of this paper is to call attention to the method of treating severe occlusive disease of the aorta by resection with graft replacement and to report our experience with a patient successfully treated by this method. In previous communications we have reported upon the successful resection of aortic aneurysm with graft replacement and upon methods of preparing and storing arterial homografts[1],[2]. The resection of a severely diseased segment of a major artery with replacement by homograft has been referred to by Julian[3] as "Direct Surgery for Arteriosclerosis" in contradistinction to indirect attempts by surgery to improve the circulation such as lumbar sympathectomy.

Arteriosclerosis is a generalized disease; however, not infrequently it may be much more advanced in one area than in others. Arteriosclerosis may cause dilatation of a blood vessel due to destruction of the elastic fibers or it may produce occlusion of the vessel as a result of intraluminal plaque formation, followed by thrombosis with resulting narrowing and eventual complete thrombosis of the vessel.

The occlusive or obstructive type of arteriosclerotic lesion of the aorta characteristically begins at the bifurcation. The process extends superiorly in the aorta toward the renal vessels and also extends inferiorly in the iliac vessels. The severity of the symptoms produced depends upon the extent of the occlusive process and also upon the rapidity with which it develops.

Leriche[4] described the symptoms produced by arteriosclerotic thrombosis of the aortic bifurcation and the condition is commonly referred to as Leriche's syndrome or disease. A number of methods of surgical treatment have been advocated in the past for this condition, and certain of these have resulted in some measure of success. For example, bilateral lumbar sympathectomy has been advocated. Some have combined lumbar sympathectomy with resection of the obstructed segment of the aorta and common iliac arteries. Yet, occasional cases treated in this manner have been restored by thrombo-end-arterectomy. However, after extensive incision of such a severely diseased segment, with clot removal and repair, the thin-walled artery is unusually susceptible to both rupture and thrombosis. Resection of a severely diseased segment of the abdominal aorta, with replacement by homograft, has become an accepted method of surgical treatment due to the work of Oudot[5], Julian, DeBakey, Bahnson, and others.

CLINICAL FINDINGS IN PATIENTS WITH SYNDROME OF LERICHE

Patients suffering from occlusive disease of the aorta at the bifurcation naturally give signs and symptoms in the lower extremities as a result of the deficient arterial circulation. Intermittent claudication usually develops gradually and becomes quite marked. Such patients often complain of cramping pain in the thighs as well as in the calves. The feet show a decrease in skin temperature and the lack of adequate arterial circulation is commonly apparent on inspection. Men troubled by this condition frequently are impotent. The femoral pulse is usually entirely absent or extremely weak on one or both sides. Some of these patients have severe pain in the muscles of the buttocks after any exercise.

CONFIRMATION OF DIAGNOSIS BY AORTOGRAM

The accurate visualization of the intraluminal area of the abdominal aorta enables one to determine much more accurately the existent condition than is possible by any other method. If one is to resect successfully an abnormal area of the great vessel and replace it by a graft one must know the extent of the process and have some idea of the adequacy of the collateral circulation. In making an aortogram a specially designed flexible needle is passed into the aorta and films are made after rapidly injecting 20 to 30 cc. of 70 per cent urokon or diodrast. The needle is usually passed into the back on the left side, the puncture site being about 1½ cm. below the lower border of the twelfth rib and about 4 cm. to the left of the mid-line. The needle is then directed superiorly and medially in the general direction of the right shoulder. When the aorta is entered a sensation not unlike that felt when the dura is punctured is usually experienced. The bright red arterial blood is seen to issue in spurts from the needle. A small amount of saline is usually injected to help keep the needle open and then 25 cc. of 70 per cent urokon or diodrast is injected as rapidly as possible. We have tested the patients for sensitivity to these agents prior to making the aortic injection. Films are exposed while the last few cubic centimeters are still being injected. It is important that the needle be placed in the aorta at a level such as not to enter the superior mesenteric or the renal artery.

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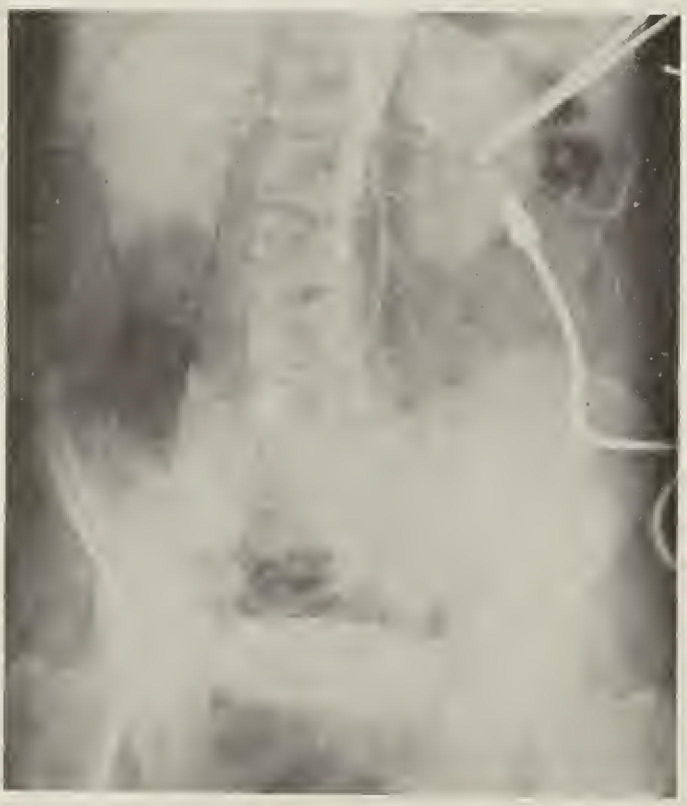

FIGURE 1. Aortogram reveals thrombosis of terminal aorta involving the bifurcation and the upper portion of the common iliac arteries.

CASE REPORT

Mrs. G. B., a white woman, age 56, entered the Baptist Hospital in Memphis on the service of Dr. Harwell Wilson on February 18, 1955, having been referred by Dr. William Hill of Elaine, Arkansas. The chief complaint was severe pain in the calves of both legs on walking a distance more than eight to ten steps. The patient stated that several months prior to coming for consultation she began to experience symptoms of intermittent claudication in both lower extremities. This gradually increased in severity causing patient to seek medical advice. A few months before admission to the hospital she consulted a physician and was given priscoline. She stated that for a short period of time after taking the medication her intermittent claudication troubled her less. The distance which she could walk without having pain, however, progressively decreased, causing the patient to seek other medical advice. She was advised to have a bilateral lumbar sympathectomy, but did not follow the advice. In addition to having intermittent claudication, the patient began to note that the right foot was cooler than the left. On admission to the hospital she was unable to walk across the hospital room without having cramping pain in the calves of the legs.

Physical examination revealed that she was in relatively good condition with the exception of the poor circulation in the lower extremities. The blood pressure was 145/85. No pulse could be felt on either side below the inguinal ligament. The right foot was cooler than the left and both appeared to be slightly blanched.

The tentative diagnosis was advanced arteriosclerosis with thrombosis of the terminal aorta (Leriche's syndrome).

On February 19, 1955, under general anesthesia an aortogram was done. Films were made immediately after the injection of 20 cc. of 70 per cent urokon. The aorta was seen to be completely obstructed at a point opposite the third lumbar vertebra. The aorta from this point down to the bifurcation was apparently obstructed due to an extensive thrombus. The upper portions of both common iliac arteries were also apparently obliterated by the thrombus. Collateral vessels were well visualized and the distal portion of both common iliac arteries could be seen.

The diagnosis of occlusive disease of the aorta (Leriche's syndrome), having been substantiated by aortogram, it was felt that exploratory laparotomy should be carried out in anticipation that the obstructed area be resected and the aorta reconstituted with a bifurcation graft made up of the terminal aorta and the upper portions of the right and left iliac arteries. On February 22, 1955, the operation was carried out. Under general anesthesia an incision was made from the xiphoid to the pubis. The peritoneum was opened over the right and left iliac arteries and a thrombus was found on both the right and left sides to extend for a distance of about an inch and a half below the bifurcation. The thrombus extended upward into the aorta to a point about an inch and a half below the renal vessels. The posterior peritoneum was opened over the aorta, and the third portion of the duodenum was freed by dividing Treitz's ligament. Small rubber catheters were then passed beneath the right and left common iliac arteries, and a small rubber catheter was passed beneath the aorta above the thrombus. Following this the lumbar branches of the aorta were ligated and divided, as also was the inferior mesenteric artery, and the aorta was dissected free from the vena cava to which it was slightly adherent. Clamps were placed across both common iliac arteries below the thrombus and a small amount of heparin was injected into each common iliac artery distal to the occluding clamps. The heparin was injected with the idea of preventing thrombosis in the legs while the resection was being carried out. An occlusive clamp was then placed across the aorta above the upper limit of the thrombus, this clamp being placed just below the renal arteries. The com-

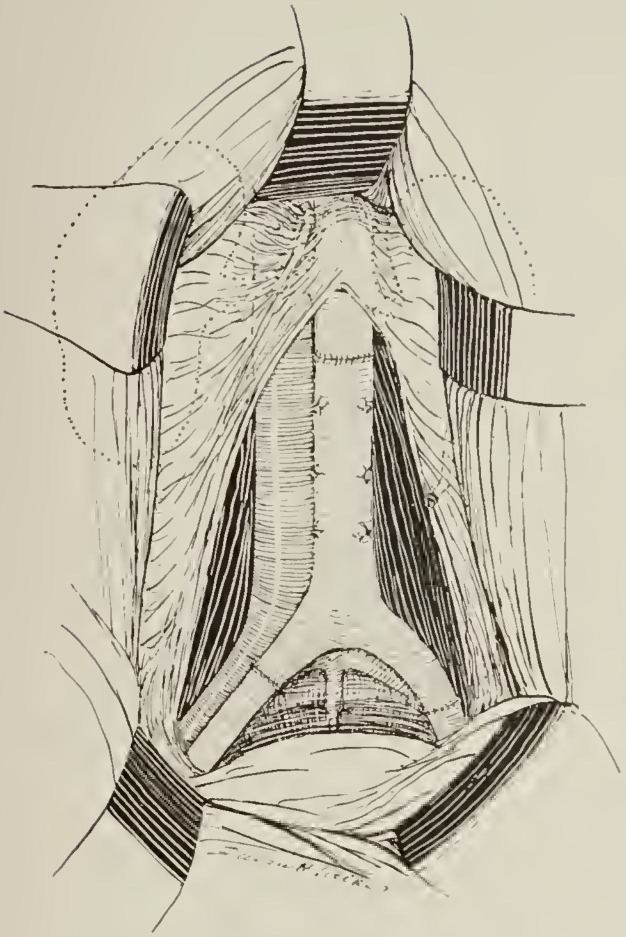

FIGURE 2. Drawing of homograft in place after resection of terminal aorta for occlusive disease (Leriche's syndrome).

mon iliac arteries were then divided and the aorta was divided. It was necessary to do an end-arterectomy of the proximal aorta and of the right and left common iliac arteries in order to remove some additional thrombus. Following this procedure the aortic graft including the bifurcation and the upper portion of the right and left iliac arteries was sutured in place. The anastomosis was made with over-and-over continuous sutures of fine silk. Care was taken to place the knots outside of the lumen. The inferior clamps were released first in order that the graft might be filled with blood under less pressure than would be the case if the aortic clamp were removed. There was a moderate amount of bleeding from one or two needle holes through the graft at the upper and lower end of the anastomosis. This was controlled without any particular difficulty by applying gauze to the area for about seven minutes and then placing a small bit of gelfoam over the area. The patient tolerated the procedure well, the blood pressure being normal throughout the operation. The abdomen was closed with chorim catgut for the peritoneum, interrupted cotton for the fascia, silk for skin, and a number of heavy retention sutures were also used. Immediately after operation the color of the extremities appeared entirely satisfactory, and the femoral pulse was present on both the right and left side where this had never been felt before. There was some question as to whether or not the dorsalis pedis pulse could be felt on the left side immediately after the operation but this could not be said to be present with certainty.

The patient's postoperative course was remarkably uneventful and a dorsalis pedis pulse was felt on the left without question several hours after operation. Within a few days the patient was walking the corridors of the hospital experiencing no discomfort in her legs. The wound healed by first intention and during the postoperative stay in the hospital the oscillometer showed the presence of pulsation in the calves of both legs; however, the pulsation was definitely less than normal, although there had been no such pulsation preoperatively. The pulse in the left foot became practically normal. A weak pulse was felt in the right foot. At the time the patient was discharged from the hospital on March 8, 1955, she stated that she felt perfectly well. Her postoperative course has remained uneventful.

SUMMARY AND CONCLUSIONS

1. The symptomatology of arteriosclerotic occlusive disease of the aorta, Leriche's syndrome, is reviewed.
2. A successful case of resection of the lower aorta and upper iliac arteries with replacement by homograft is reported in a patient suffering from occlusive disease of the aorta.

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The law of attraction is universal. Everything works together for good to those who sincerely believe in the good.

Acute Renal Failure*

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In the past few years from all the chaos, clear-cut principles for the management of anuria and oliguria have emerged which produce satisfactory results with conservative management in 80 per cent or more of the patients. Lower nephron nephrosis is perhaps the most common cause of oliguria of severe degree and this will be the chief subject dealt with here.

FIGURE 1

ETIOLOGY

- SHOCK
- PIGMENT EXCRETION
  - Transfusion Reactions
  - Crushing Injuries
  - Blackwater Fever
  - Burns
  - I. V. Distilled Water
- SEVERE INTOXICATIONS
- SULFONAMIDES
- CARBON TETRACHLORIDE
- MUSHROOM POISONING
- SEVERE INFECTIONS
- HEMORRHAGIC FEVER
- GASTRO-ENTERITIS
- ANAPHYLAXIS

ETIOLOGY

Lower nephron nephrosis is a disease of the renal tubules accompanied by oliguria or anuria. Etiological factors (Fig. 1) are shock; pigment excretion as in crushing injuries, transfusion reactions from incompatible blood, intravenous distilled water administration, burns, and black water fever; sulfonamide intoxication, hyperthermia, mushroom poisoning, carbon tetrachloride poisoning, severe infections and intoxications of all kinds, allergy and anaphylaxis, gastroenteritis, electrolyte disturbances, and hepato-renal syndrome in some instances[1].

PATHOLOGY

A marked disturbance and anatomical disorganization occurs within the tubular cells, first in the ascending limb of the loop of Henle and next in the distal convoluted tubules[2]. The proximal convoluted tubules, however, are not spared. The changes are patchy with normal tubule cells lying beside completely necrotic segments. Necrosis of the tubular cells occurs and they may regenerate, but where the basement membrane is actually destroyed regeneration cannot occur. It must be remembered that if the continuity of the tubule is interrupted at any point, this tubule becomes functionless as far as the formation of urine is concerned. In addition to this, pigment casts of myoglobin or hemoglobin may obstruct the tubule and interfere with the flow of urine. It is thought that reabsorption of the globin molecule from myoglobin in crushing injuries and the globin molecule of hemoglobin in pigment disturbances produce the damage to the tubular cell. In experimental animals the pigments will not produce renal damage unless the animal is dehydrated and thrown into shock when the hemoglobin or myoglobin is being administered. It is amazing at times that a human being may receive as much as 500 cc. of completely incompatible blood without even developing oliguria. One patient who received 4500 cc. of distilled water intravenously over a three-day period had only brief oliguria.

FIGURE 2

CLINICAL PICTURE

- Daily Urine Volume of 400 cc. or Less
  - Exceptional Case 1000-2500 cc.
- History of Precipitating Cause
- Dark Urine—Hemoglobin or Myoglobin
- Heavy Proteinuria
- Rising BUN
- Frequent Nausea and Vomiting
- Rapidly Developing Acidosis
  - Severe Vomiting May Produce Alkalosis
- Rapidly Developing Anemia
- Potassium Intoxication May Appear

IF TOO MUCH FLUID OR SODIUM IS GIVEN

- Edema
- Hypertension
- Pulmonary Edema
- Lethargy or Frank Disorientation

CLINICAL PICTURES

Early recognition is of prime importance in instituting proper management. This necessitates careful recording of *urine output* during the 24 to 48 hours following surgery or transfusion and close observation of the first urine specimen for abnormal color changes after a patient has been through a period of shock or one of these procedures. A *dark* appearance of the *urine* is observed and there is a heavy concentration of albumin. There may be gross hematuria or simply hemoglobinuria. *Oliguria* may occur at once but the patient usually passes 50 to 200 cc. of urine each 24 hours and rarely becomes completely anuric. In heavy metal intoxication there may be actual diuresis for the first 24 to 48 hours after which oliguria sets in. In unusual instances a normal urine flow of 2000 to 2500 cc. may continue throughout the course of the illness and the only clue to the diagnosis may be a rising blood NPN with increasing drowsiness on the part of the patient. *Nausea* and *vomiting* begin early if the patient continues to take food or fluid and they interfere with management employing oral intake. *Sensorium* may remain normal throughout the course of the illness when the patient is not overhydrated and not given salt. This, despite serious disturbances in electrolyte balance. In complicated cases with infection, crushing injuries or in postoperative subjects, sensorium may be poor from the beginning. *Edema* does not occur except in individuals who receive excessive fluid; and hypertension is quite unusual unless the patient receives too much salt or water. *Convulsions* occur from potassium intoxication or cerebral edema, but are seldom due to hypocalcemia since the low blood calcium is counterbalanced by the low CO_2 combining power which produces an increase in the ionized calcium. Cardiac dilatation, gallop, and *pulmonary edema* come from overhydration or from transfusions during the course of the illness. *Fever* is absent after the first few days but may return as the patient enters the diuretic phase[3]. Any considerable elevation of temperature should prompt a search for urinary infection or infection in some other location. *Anemia* develops early if the patient is overhydrated and later is seen as a result of hemolysis, bone marrow depression, or other unknown causes. A *leukocytosis* of 20,000 per $mm.^3$ or more may be found early and persist even into the post anuric phase.

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For the first day or two a *specific gravity* of 1.020 or better may be found but after this it drops to around 1.010 and remains low. Any elevation after the first two or three days should lead to a suspicion of some other type of lesion. *Glycosuria* does not occur even in the face of a very high blood sugar produced by injections of 25 per cent to 50 per cent glucose. Lack of glycosuria in the face of high blood sugars may persist to the third or fourth day of the diuretic period. The *blood sodium* tends to remain normal if the patient is not overhydrated and may be used as a guide to over or under hydration since even in the patients who put out considerable water, very little sodium is excreted. The blood *bicarbonate* or CO_2 combining power drops early in all patients except those who lose large quantities of chloride via vomiting, especially pregnant patients who usually have a high gastric acidity. Such subjects may have a moderate alkalosis. Some rise in blood potassium occurs in three-fourths of the patients and one-fourth of all patients have severe potassium intoxication with blood levels above 8 mEq/Liter. The blood phosphorus is high and the calcium is low.

Regeneration of the tubules begins about the third day and is usually complete by the tenth day. An indwelling catheter will demonstrate a gradual increase in urine flow until it reaches 700 to 1000 cc. after which a real diuresis of 3000 to 4000 cc. of urine daily is usually established. This may be somewhat less if the patient has not been at all overhydrated. During the week following the onset of the postanuric phase the patient may appear much sicker than he was during anuria, and the chemistries may become more abnormal for the first three days of the postanuric period because the patient excretes more water than electrolytes and urea. Nausea may continue for a week or sometimes two weeks after the kidneys begin to open up. Careful management is required during this time or the patient can be lost. It is not uncommon to have a urinary infection during this period and any marked elevation of temperature should prompt the institution of antibiotic therapy. However, large numbers of leukocytes will be found in the urine even in the absence of infection as a result of sloughing off of the damaged tubular cells.

FIGURE 3

DIFFERENTIAL DIAGNOSIS

- LOW SALT SYNDROME
  - History of Salt Loss from Diuretics, Vomiting, Etc.
  - Gradual Onset—Drowsiness
  - Normal CO_2—Combining Power Early
  - Urine Volume Not Below 200 cc.
- DEHYDRATION
  - History
  - Inelastic Skin
  - Urine Volume Not Less Than 500 cc. Except with Reduced B. P.
  - Calculation of Fluid Balance
- MERCURY POISONING
  - History of Ingestion
  - G-I Symptoms
  - Hg. in Urine
- PERIARTERITIS
  - Neurological Findings
  - Joint Pains
  - Skin Rash
  - Eosinophilia
- URINARY TRACT OBSTRUCTION
  - KUB—Bladder and Ureteral Calculus
  - Ureteral—Must Cystoscope if Uncertain, Especially if Sulfonamides Have Been Given

ACUTE AND SUBACUTE GLOMERULONEPHRITIS
- Early Edema and Hypertension
- History of Previous Albuminuria
- Needle Biopsy of the Kidney

MALIGNANT HYPERTENSION
- History
- Elevated B. P.
- Fundi

TOXEMIA OF PREGNANCY
- Pregnancy
- Marked Hypertension
- Early Edema and Albuminuria

BILATERAL CORTICAL NECROSIS
- Pregnancy—Over One-Half of Cases
- Abruptio Placentae
- Severe Infections

NECROTIZING PAPILLITIS
- Diabetes Often
- Pus Not Always Present
- Rapidly Developing Disorientation
- Fever Not Always Present
- Passing of Papilla in Urine

POSTOPERATIVE SALT RETENTION
- Over-zealous Salt Administration
- Adrenal Hyperactivity
- CO_2 Combining Power Elevated

	L. N. N.	*Dehyd.*	*Post-Op. Alk.*	*Low Salt*
CO_2	Low	Normal Low	High	Normal
Bl. Cl.	Low	High	Norm.	Low
U. Cl.	Mod. Low	High	Low	Low
U. Vol.	Low	500	200-400	200-400
Sp. Grav.	1.010 after 2nd day. May be good 1st 2 days	High	Low	Low

DIFFERENTIAL DIAGNOSIS

Mercury poisoning may sometimes be distinguished by the presence of a bloody diarrhea and abdominal cramps and in some instances sialorrhea. *Dehydration* seldom produces oliguria of less than 500 cc. a day unless the dehydration is sufficient to produce a reduction in blood pressure and filtration. This is because at least 500 cc. of water a day are required for the normal kidney to excrete its 40 grams of solids daily. An inelastic, putty-like skin may be found in the dehydrated patient and the blood bicarbonate or CO_2 combining power falls much less rapidly than in lower nephron nephrosis. *Acute glomerulonephritis* is often accompanied by hypertension and edema from the very beginning whereas these are unusual in the properly managed patient with lower nephron nephrosis. More *advanced glomerulonephritis* may damage the filtering units so severely that oliguria is produced and here again early hypertension and edema and a previous history of albuminuria may help.

Bilateral cortical necrosis occurs most commonly in pregnant women with premature separation of the placenta. New development of hypertension of any degree is uncommon but the patient may have already been hypertensive from other causes. Needle biopsy of the kidney is the only way in which the diagnosis can be established during life. Recovery can occur with cortical necrosis so this should not be an occasion for abandonment of proper therapy, even the use of the artificial kidney. In *toxemia of pregnancy,* early hypertension and rapid increase in blood uric acid out of proportion to the increase in urea nitrogen are found. *Low salt syndrome* is uncommon in stressful situations because the kidneys are usually retaining salt in the latter. However, profuse vomiting, Wangensteen suction, or marked drainage from intestinal fistulae can produce it. The oliguria is seldom severe, urine flow being usually as much as 300-400 cc. a day. In such a condition the blood bicarbonate is seldom very low and may be normal or slightly elevated because of the loss of chloride. *Postoperative salt retention* gives an elevation of blood bicarbonate whereas it is very low in lower nephron nephrosis.

FIGURE 4

ABNORMAL CHEMISTRIES

	Normal	*Day*	*Patient*
NPN	28	13	286
CO_2	27	12	4.5
CL	103	6	62
NA	140	11	11.3
K	4.5	All	4 - 4.5
P	3.5	7	11
DIURESIS		10	

FIGURE 5

CONSERVATIVE MANAGEMENT OF LOWER NEPHRON NEPHROSIS

OBJECTIVES

- Accurate Fluid Balance (600 cc. Daily Loss Through Lungs and Skin).
  - Lose ½ lb. daily
- Maintain Nutrition
- Minimize Protein Catabolism
- Replace Na and Cl Losses Only
- Avoid Toxic Substances as Protein, K-Containing Substances, Mg. and Acid Salts
- Caution in Use of Substances Usually Excreted by the Kidney as Streptomycin, Etc.
- Avoid Increase in Blood Volume as With Transfusions

PROCEDURE

IF PATIENT IS NAUSEATED
- Try to Control with Chlorpromazine
- 600 cc. Basic Fluid Requirement Plus Replacement of Urine Volume, Vomitus, and Drainage from Fistulae
- Use 25-50 per cent Glucose
- No NaCl Except to Replace Losses
- Avoid Protein, K, and Acid Salts
- Vitamin Supplements

IF NOT NAUSEATED
- Butter and Sugar Diet—2400 Cal. Per Day
- Rock Candy, Ginger Ale
- OR
- Per Tube—Liquid Peanut or Cocoanut Oil and Dextrose
- Potassium Absorbing Resin—50 Grams Daily

POSTANURIC PHASE
- Use Salt Only When 5 Gm. Per Day or More in Urine
- Avoid Soda Bicarb
- Avoid Transfusions First Four Days
- No Protein As Such for 1-2 Weeks
- Pyuria Almost Always—With High Fever Or Positive Urine Culture Give Antibiotics

TREATMENT

The aims of treatment are: 1) to prevent protein breakdown since the end-products of protein catabolism are toxic, 2) to keep the distribution and quantity of body water as nearly normal as possible, and 3) not to give anything harmful.

If the patient can retain food or fluid orally the Borst diet, a butter and sugar mixture of around 2400 calories per day, is given by mouth or if this is nauseating a Levine tube may be inserted into the stomach and a Bull diet, which is a coconut or peanut oil and dextrose mixture, can be given through the tube.

If the patient is nauseated, one may attempt to allay the nausea with chlorpromazine starting first with 225 mg. intramuscularly and, if the nausea is controlled, continue with 25 mg. every 4 hours night and day by mouth; if this is ineffective one may go up to as much as 50 mg. every 4 hours either intramuscularly or by mouth, watching the blood pressure carefully to be sure that the patient does not go into shock. Chlorpromazine is not excreted by the kidney but is detoxified in the liver so one need have no fear about cumulative effects in patients with renal shut-down. If this fails to allay the nausea, a polyethylene catheter may be threaded through the femoral vein into the inferior vena cava and 25 per cent or 50 per cent glucose in distilled water is given, the amount to be determined by the patient's daily fluid requirement. The basic fluid requirement for loss through the skin and lungs is approximately 600 cc. when the room temperature is average and the patient is afebrile. To this must be added the loss through the urine or from the gastrointestinal tract.

No sodium salt is given except to replace intestinal losses. Prevention of cast formation by early administration of alkalis is an outmoded idea. Potassium, acid salts, and diuretics are harmful and should never be used. No attempt is made to correct the abnormal blood chemistry findings except for the increase in blood potassium. Transfusions are avoided unless the hemoglobin falls below 6 grams. If this occurs then only packed red cells should be given in order to avoid the possibility of pulmonary edema.

Potassium absorbing resins were unsuccessful in our hands until we started using chlorpromazine to prevent the nausea and vomiting prompted by the resins. About 50 to 60 grams of resin ar given each 24 hours in 4 to 6 divided doses. If gastric suction is being used the resin can be put down through the tube, suction stopped for a period of an hour or two and then the resin may be removed. The resin is much less effective when given by rectum. For emergencies over a period of 12 to 24 hours while getting the patient to an artificial kidney or while beginning to institute peritoneal dialysis, 50 per cent glucose and insulin may be given intravenously to encourage the deposition of potassium in the muscles or liver. Calcium gluconate intravenously is useful but not quite so effective. Gastric suction also may tide the patient over temporarily.

FIGURE 6

ARTIFICIAL DIALYSIS

INDICATIONS
- Bl. K Above 7 MEQ Despite Other Measures
- Pt. Looks Bad or is Disoriented In Presence of Good Fluid and Salt Balance and in Absence of Infection, Trauma, or Other Cause.

GASTRIC LAVAGE WITH K ADSORBING RESIN

GASTRIC LAVAGE WITH GROLLMAN'S FLUID

INTERMITTENT PERITONEAL LAVAGE WITH GROLLMAN'S FLUID
- 2000 cc. Introduced for 2 Hours

CONTINUOUS PERITONEAL LAVAGE

FIGURE 7

GROLLMAN'S FLUID

(From "Acute Renal Failure")

	GMS./L.	*Available Solutions*	*Total MEQ/L. IONS*	
NaCl	6.00	600 cc. 0.9% NaCl	Na.	139.0
$NaHCO_3$	3.00	40 cc. 3.75 Gm./50 cc.	Cl	113.2
KCl	0.30	2 cc. 14.9% Sol.*	L	4.0
$CaCl_2$	0.25	2.5 cc. of 10% Sol.	Ca	4.5
$MgCl_2$	0.17	1 cc. of 17% Sol.	Mg	1.7
(6 H_20)			HCO_3	36.0

*Omit KCl in Hyperpotassemia

100,000 U. Penicillin, 25 Mg. Terramycin

Glucose Q. S. 1 Liter

Add Ca, Mg, and Antibiotics Just Before Dialysis to Avoid Precipitation.

Peritoneal lavage has been used by introducing a ureteral catheter through a trocar into one side of the abdomen, putting in around 2000 cc. of dialyzing fluid, and introducing another ureteral catheter into the opposite side and adjusting a continuous drip of fluid to balance the loss through the latter catheter[4]. Grollman's method is somewhat simpler[5]. He uses a polyethylene tube of a calibre such that it can be introduced through an average paracentesis trocar, directs it down the pelvis and introduces about two to three liters of fluid as described in table. A number of perforations are made in the tube with a hot wire so as to prevent obstruction by the mesentery or intestinal coils. The fluid is changed every two hours and 5 to 7 changes are made. Antibiotics are given to the patient and are placed in the dialyzing fluid. No patient should be treated with this method for longer than 13 hours consecutively. A safer and somewhat more effective procedure is the use of dialysis by means of the artificial kidney; however, this requires a trained team, is a very expensive procedure, and is not available in most communities. If the other measures are unsuccessful and the blood potassium is as high as 7 mEq/L. with the urine flow still less than 500 cc. a day, artificial dialysis should be employed. Death may occur despite reduction of the blood potassium to normal and some believe that the artificial dialysis should be employed even when the potassium is not strikingly elevated when the urine flow is still low after the eighth to tenth day. It is not yet known whether sudden deaths can be prevented by dialysis in subjects when the blood potassium is not high.

Salt loss in the diuretic phase or postanuric phase has been over-emphasized and probably no additional salt should be given for the first two to three days after diuresis sets in; this also applies to blood transfusions and either may produce acute pulmonary edema when used at this time. For the first few days 2000 to 4000 cc. of water may be passed with relatively little electrolyte in it. Preferably the amount of salt lost in the urine should be measured or estimated by one of the rough methods and only that amount given at first.

Rapid increase in the carbon dioxide combining power by administration of alkali during the postanuric phase may produce tetany by reducing the amount of ionized calcium before the blood calcium has returned to normal. This may require one to two weeks. While the blood potassium may fall during the diuretic phase, it seldom becomes of any clinical significance and is rarely necessary to give potassium before a diet can be started. Multi-vitamin preparations should be given throughout the course of the illness.

The most difficult patients of all are those who have complicating infection and severe trauma. Such patients are often lost despite the use of all measures available.

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BOSTON CLINICAL MEETING OF AMA

All persons who desire a place on the lecture program at the Boston Clinical Meeting of the American Medical Association are urged to communicate immediately with the chairman of the Program Committee, Theodore L. Badger, M.D., c/o Massachusetts Medical Society, 22 The Fenway, Boston 15.

Applications for space in the Scientific Exhibit are now available and will be sent on request. Exhibits will supplement the lectures as far as possible, and should portray subjects of a broad general interest. Requests for applications should be sent to the Secretary, Council on Scientific Assembly, American Medical Association, 535 N. Dearborn St., Chicago 10, Illinois.

Legislation and Health

FOSTER L. FOWLER
Director, Commission on Hospital Care
Jackson, Miss.

SOMEONE HAS remarked that the only things certain in this life are death and taxes, but another and wiser has pointed out that change is even more certain. Not all change is progress, but all progress is change. It, therefore, behooves us as individuals and as an organized society to scrutinize and evaluate the change that we see, retaining that which is good and rejecting or further adapting that which is without value.

Not the least startling of the changes which we see about us are those which we see in the attitude of the public toward matters pertaining to health.

In fairly recent years health was an intensely personal matter that attracted interest in the abstract only from the relatively small group of professional men who were most aware of its lack. Ask a man if he were interested in health and you'd get a reply about like this, "Sure! Who doesn't want to be healthy?" Ask his grandson today and you'll likely end up as a team captain on the cancer society drive. People don't have bigger hearts these days; they just have broader vision and more information.

If a farmer came down with chills and fever right at planting time, it was not uncommon for his neighbors to band together to plow and plant his crop. It was a fine unselfish act. Today we drain or spray the swamp below his place and let him put in his own crop. Both solutions represent concerted community effort. Probably the former method developed more admirable traits of character, but the latter is virtually certain to develop stronger bodies.

Practically everything worth while that has been accomplished in the field of health has been the result of concerted action on the part of the people themselves. In saying this, I do not mean to detract at all from the efforts of those dedicated men who have done basic research—or of those zealots who have prodded the people until they were aroused. For example the splendid work of Jenner (who discovered the way to immunize against smallpox) plus the zeal of Dr. Benjamin Waterhouse, who introduced vaccination into this country, were largely unavailing until after Dr. Waterhouse prevailed on Thomas Jefferson to support the cause and he, in turn, persuaded Congress to enact in 1813 "An Act to Encourage Vaccination." I think it is significant that one of the founding fathers did not feel it improper to throw the entire weight of the Federal Government behind what he considered a worth while health objective.

Whenever the people have been unable to attain a desired end otherwise, or when they have become impatient with the progress being made toward that attainment, they have not hesitated, through their elected officials, to enact laws to accelerate the process. Practically all public health measures are the direct result of such sentiments. Not many of these measures have been enacted without controversy. Some are yet the subject of spirited, if not bitter, debate. Frequently the debate is not over the goal but the route to that goal.

One of these modern concepts that has been responsible for a great part of our health legislation might be stated thus: *Every citizen is entitled to protection from health hazards over which he has little or no personal control even at public expense.*

From this belief have come our laws requiring:

1. Quarantine of contagious disease.
2. Immunization of school children and others.
3. Food and drug inspection and control.
4. Periodic inspection of public water and milk supplies.
5. Inspection of hotels, restaurants, and more recently hospitals and nursing homes.
6. Examination and licensing of physicians and pharmacists and the registration of nurses.

These things, and others like them, all the product of legislation, have become so firmly established and universally accepted that about the only controversy that arises in connection with them is over methods and sometimes cost.

Another modern concept has been responsible for much of our health legislation of the past twenty years though its fundamental principle was established in response to Cain's inquiry, "Am I my brother's keeper?", and it has been practiced by individuals and some groups ever since. So far as it applies to health and legislation, it might be stated: *Every citizen should have available to him*

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*Presented before the Mississippi Women's Cabinet, Jackson, Miss., March, 1955.

adequate medical and hospital care gauged to his need rather than to his ability to pay.

The medical profession has traditionally insisted that medical attention to the needy is its special province, and it has discharged this self-imposed obligation well.

Hospital care for those unable to pay or able to pay only in part is rapidly becoming a public rather than a private debt, and so it has become, and will be more in the future, a subject for legislation. This has come about because of several factors some of which are:

1. The decrease in private gifts to hospitals for operating expenses.
2. The lower yield of endowments already established.
3. Inflation and the rapid rise in operating costs.
4. More intensive (and expensive) treatment.
5. More universal use of hospitals for all types and kinds of illness.

It is this concept, which, in the past, has inspired legislation to:

1. Establish 5 charity hospitals in the state.
2. Provide through the state per capita fund money for the hospitalization of indigents.
3. Transformed our mental hospitals from lunatic asylums whose motto might well have been "abandon hope all ye who enter here," into institutions of healing (which discharge as cured or partially so 75 per cent or more of those who enter.)
4. Established and maintained one of the finest tuberculosis hospitals in the nation, an institution which has done its work so well that, within the lifetime of one man whose dream it was and is, it may conceivably see its avowed enemy disappear as a major menace to health.
5. Provided funds to assist communities to build the hospitals needed to place up-to-date medical and hospital service within easy access to all the people.

There are other factors, too, which are affecting and will continue to affect even more the course of health legislation. Some of them are:

1. The great increase in hospital insurance holdings. The protection afforded by this fairly recent phenomenon has proved a God-sent blessing to thousands. If ways can be devised to extend this coverage to the lower income groups who need it most and are least likely to have it, hospital usage will increase greatly and the stream of state funds that is presently devoted to the purchase of "charity care" can be diverted to better use.
2. The increase in hospital usage (from ¾-million patient days in 1946 to more than 1¼-million patient days in 1954 in Mississippi) demands that we train more nurses and technicians to serve those patients.
3. The average age of our population is increasing rapidly.
4. The average length of stay in general hospitals is steadily declining.
5. It has been demonstrated that many who were thought hopelessly crippled can be restored to a useful life and others greatly helped by our Vocational Rehabilitation program.
6. There is a marked increase either in the incidence of mental disease or improvement in the diagnosis of such disorders. As an offset to this, great improvement has been made in the treatment of mental disorders with a higher percentage of cures than ever before. A mental patient who is cured and returned to a useful pursuit becomes an asset to the state rather than a liability.
7. Then there is a theory that is too widely held which I call the "Poor South" theory. It is more widely held by our friends in the North and the East though I have heard it expounded by Southerners who mistakenly feel it helps our cause. Mr. Nelson Rockerfeller, who at that time was Undersecretary of Health, Education and Welfare expressed it thus:

> "The kind of tax system under which our governments are now financed places much of the total tax-paying ability of the country in a limited number of the states. Other states lack the resources to carry on, unaided, some of the most essential services. Bringing the problem to a head is the fact that in those states where the income is lowest, many of the needs for health services are greatest. Here the nation as a whole has responsibility, etc."

I was present in the meeting where that statement was made—and I did a slow burn. That view has influenced much Federal Health legislation and will influence more. That Mississippi has profited in greater federal assistance because this view is so widely held is unquestioned. What stirs my ire is that this help has been given grudgingly with the air of helping a poor relation for the sake of family pride.

I agree that our need is greater than that of wealthier states. I contend, therefore, that we should be given a disproportionate share of health appropriations for the same reason that all the great irrigation projects are built in the arid West, *because that is where the need is*, and for no other reason. Just because the Illinois Central Railroad pays its taxes in Illinois, General Motors in Michigan, American Telephone and Telegraph in New York and R. J. Reynolds Tobacco Company in North Carolina, it doesn't mean they are Illinois, Michigan, New York and North Carolina taxes. Those are United States taxes levied by the United States Congress and part of them were dug or pumped out of Mississippi soil wherever the middleman finally paid them.

Having thus discussed with you the developments which have already influenced health legislation, and some of the social and economic factors that are likely to influence future health legislation, I wonder if it would be presumptuous of me to suggest some of the things that I feel we need. Not all of them require legislation, but all of them need your support if you think well of them.

1. We need to continue the Hill-Burton program of hospital construction.
2. We need a better approach to the problem of medical indigency than has yet been found.
3. We need to recognize that education in the fields of nursing and medical technology is not materially different from education in the fields of engineering or agriculture and is just as deserving of financial support from the state.
4. We need more medical specialists in Mississippi. The program of scholarship aid to medical students has done a remarkable job of supplying the rural areas of our state with physicians, but its very terms discourage them from studying to meet the requirements of the various specialty boards. This should be changed to permit those having special interests or talents to develop those talents for the good of the state.
5. We need increased facilities for treatment of mental disease—not just physical plants though they are badly needed, but adequate staffs to man these increased plants as well.
6. We need continued support of all activities working toward prevention of disease.
7. We need a humane and sensible approach to the problems of the aged. (Revise Social Security laws)
8. We need an enlarged program of rehabilitation of the handicapped.

Any of the eight needs that I have just enumerated is a fit subject for a half-hour talk, but rest assured, I shan't attempt it. I appreciate the interest and attention you have given to my problems, and yours.

INFORMATION ON INSECTICIDE POISONING REQUESTED

A special grant has been made to the Department of Pathology, Louisiana State University School of Medicine, to investigate the mechanism of action of anticholinesterase insecticides and the therapy of poisoning resulting from excessive exposure. The widespread use of Parathion and TEPP (tetraethyl pyrophosphate) in agriculture, industry and the home is causing an increased number of accidental exposures. Our interest encompasses clinical observations as well as studies on fatal cases at autopsy.

If a case of poisoning by any of the anticholinesterase insecticides comes to your attention, it would be appreciated greatly if you would allow us to obtain information on the case. Because of the rarity of this condition and certain unusual aspects of therapy we are prepared, when requested, to give recommendations as to treatment in a surviving patient. We are also prepared to send an investigative team at our expense. Telephone calls to report cases and request information will be accepted at any time, day or night, to Dr. Stanley H. Durlacher, New Orleans, Franklin 4141, collect.

Your cooperation is earnestly solicited.

LOUISIANA HEART ASSOCIATION

Annual meeting, June 16, 1955, at Louisiana State University Medical School Auditorium, New Orleans, Louisiana. 2:00 p.m., Scientific Session; 4:00 p.m., First Annual Assembly of Louisiana Heart Association members; 8:00 p.m., Public Forum on Heart Disease. Sponsored by Louisiana State University Medical School and Louisiana Heart Association.

The Cancer Society and MSMA*

CUMMINGS H. McCALL, M.D.
Gulfport, Miss.

THE ASSIGNMENT given me to discuss with you today various aspects of the relationship between the American Cancer Society and the Mississippi State Medical Association is like a half pound of overdone rump roast: It's easy enough to hand someone but pretty tough to chew. I'm going to take further license with didactic medicine and add that the success of digestion will probably depend upon the excellence of mastication and the adequacy of introducing certain gastric juices.

This is all to say that it's difficult to arrive at a well-rounded point of view in appraising relations between any voluntary health agency and a medical organization. For most of us, this point of view depends upon our position, interests, and personal objectives. I trust that I have been able to project my thinking along sufficiently objective lines to facilitate the eating and digestion of our roast of rhetoric without a stomach ache or an unpleasant aftertaste.

Before tackling any specific relationship, let's take a brief look at the notion of any two organizations cooperating while working in broadly parallel fields. The most fundamental logic tells us that there must be in any organization a definite—and usually restricted—purpose; there must be a certain exclusiveness to achieve a feeling of belonging; and there must finally be some measurement of results if an incentive for group continuity is maintained. Most organizations can be identical only in the first requirement, that of purpose. The latter conditions are essentially means and, therefore, often produce group conflicts. It is with these aspects that I intend to deal today.

The stated purposes of the respective groups here—the Cancer Society and the medical association—are service. Yours is a specialized field, treatment, education, and research in cancer. Ours, speaking as the president of the medical association, concerns all aspects of human ailment. Your group is what we might call a vertical one, made up of lay and professional people from all walks of life. You have the banker and the baker, the physician and the nurse, the clerk and the executive. Ours is a horizontal group, made up of persons with more or less identical interest, general training, and like habits.

What we're aiming for is a continuing cooperation. Each of us appears to be here to stay, so even negatively, let's concede that we may as well seek the most mutually beneficial relations between us.

These academic generalities seek an explanation of the motives which underlie our individual organizations. After all, we first learn that rain is wet, snow is cold, and sun is warm before becoming weather experts.

Any voluntary health organization needs the medical profession in its program of work and service. Unfortunately, there are many such organizations and only one medical profession. You of the Cancer Society have demonstrated an appreciation of this problem, for you have long accepted the idea of a small spokesman-type group from among the physicians' organization as your advisory body. We presently point with pride to the fact that our Committee on Cancer Control is one of the most able, active committees of the Mississippi State Medical Association.

We of Mississippi medicine have moved in a direction of extending our resources to a maximum degree without spreading ourselves too thinly. This has been and is being broadly achieved with elected committees. An elected mechanism comes into being with a specific job assignment. More important, its responsibility is sharply defined, and the accounting of its stewardship is a preordained fact upon its existence. Our committee on Cancer Control is such a unit.

We believe that this notion of advisory or service committees almost underwrites their success, depending only upon the election of able members. That, we find, we can trust our House of Delegates to do. It is the honest and fair thing to do for the agency requesting such a committee, for here they receive the service of a group unhampered by obligation, hazy policy definition, and uninterested appointees.

Let me ask you to make a mental note that this type of service in liaison or advisory work is point one in a program of cooperation.

Next comes the problem of understanding one another. In the countless meetings which it falls my lot to attend with the medical association, I have found myself amused on any number of occasions with this matter of understanding what the other fellow is getting at. Even in our own committees, I have heard two or more members argue spiritedly when the only difference was of semantics. It's amazing how two persons can say the same thing in such a totally different way. I strongly suspect that many past differences between the American Cancer Society and the Mississippi State Medical Association have been more semantical than ideological. And as George Gobel might say, "Don't you forget that!"

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*Presented as the luncheon address before the annual meeting of the American Cancer Society, Mississippi Division, Jackson, Feb. 2, 1955.

This is emphatically not to say that our respective organizations do not hold to certain nonparallel ideas. For one thing, there seems to me there is a growing body of opinion in medicine that all voluntary health agencies ought to shift their activities to education and research in their several fields. Your society, in contrast, has as one of its major programs that of indigent hospital treatment, terminal care, and the like. Now, I think that this should be more of a basis for challenging our talents to grow closer than as a springboard for departing in opposite directions.

I most sincerely believe that each of us present in this room can be honestly criticized for having failed all our lives to exert the maximum effort to find out the other fellow's view. I didn't come to teach you a Sunday school lesson, but the opportunity for this lucid point is too much of a temptation to ignore. Since I said it of myself first, I know that each of you will repeat it in sincere self-appraisal.

On the positive side, a light of understanding is brightening. Just look, for example, at the fact that I have been invited to address you. Observe, if you will, the work of our committee, willing to meet with much travel and personal sacrifice at your request. Note carefully the cordiality between our respective executive offices.

Get out your mental notepad again and jot down point two, this matter of beginning to understand each other.

The third broad concept I want to approach is that of net results as we try to travel parallel pathways. The casual observer is likely to conclude at this point that a statement of purpose is all we need to define this idea. But let's cut the cloth to fit the pattern and be a little realistic. First of all, we're people, and people are the most unpredictable critters in the world. Wherever you get as many as a dozen of them, you'll probably have one zealot, one chronic bellyacher who can't be pleased by the Heavenly Hosts, two workers of average dependability, six who range from hot to cool in effort expended, and two who can't be moved under any circumstance. And, to top it off, you still can't depend upon their being divided or behaving thus!

I believe that those of us in the health service fields are driven by three primary urges—Freud notwithstanding. To me these are the urge to live, to serve, and to know. We can find more wonder and amazement as we seek the satisfaction of these simple drives in such a wide variety of ways. One sensible comment appearing to me is that we live altogether too complex lives—we have lost our simplicity. With that loss, there also comes the loss of such fundamental virtues as patience, understanding, sharing, yes, even generosity. Isn't it a wonder to you that any two persons can agree upon a program of service in this complex age?

Net results from different viewpoints are not easily reached. This difficulty ought to unite rather than to divide or else the end becomes too expensive to purchase with the available means.

No single idea or program should be held as an ultimate. If this were not so, then we in medicine would have never conquered infectious disease; we would have no chest surgery; and we would not know what is presently known as the cancer field. This idea is an indictment of bureaucracy, proof-positive for the utter necessity of living and working dynamically.

Will you make this your third point and put away the mental notepad.

If my thoughts have been worthy of your understanding—let alone your courteous hearing—then I have no need to summarize. Rather, let's say that we are mutually discovering *ways* (point one) of *understanding* (point two) the attainment of *valued ends* (point three.)

If for any reason, you think of my approach as didactic or snobbish, then be assured that neither was my intention. Men of medicine are seldom great choosers of words—and, for that matter, who is? I would much prefer that you accept even those ideas I've touched upon with which you may find no basis for acceptance as sincerely—not vindictively—laid before you.

The relationship between the American Cancer Society and the Mississippi State Medical Association, like the Saturday shopper in the rural community, has come a fur piece. It has a correspondingly greater distance to go, but I, for one, think that the road is getting better.

Nothing will ever be attempted if all possible
objections must first be overcome.

Acute Arterial Occlusion

JOHN S. BARR, M.D.†
Belzoni, Miss.

Acute or sudden arterial occlusion is a medical catastrophe demanding immediate diagnosis and intervention if the involved extremity is to be preserved. If diagnosis and treatment is delayed for any appreciable length of time, the sequelae of gangrene and ascending thrombosis may supervene. Amputation of the involved extremity is a frequent termination of a well-treated case and the almost inevitable termination of a neglected case.

ETIOLOGY

Sudden arterial occlusion of the extremities, occurring spontaneously, is due either to embolism or thrombosis. The commonest cause of arterial occlusion due to embolism is heart disease with such conditions as pelvic carcinoma, patent foramen ovale, arteriosclerosis obliterans and operative procedures being rare causes. The commonest cause of a rapidly forming thrombus in a peripheral artery is arteriosclerosis obliterans while thromboangiitis obliterans and postoperative occurrences are significant[1]. Postoperative thrombosis usually follows such massive operations as total hysterectomy, carcinoma of the colon, and gastric resection, though some of the simpler operations may cause or predispose to this condition. Arterial embolism usually results from the detachment of a portion of an intracardiac thrombus which has developed in a fibrillating left auricle or in the surface of a recent myocardial infarct. The embolus may be a portion of the vegetation from a heart valve infected by endocarditis and rarely it is a part of a thrombus which has developed on the wall of the aorta or an artery more proximal than the one occluded[2]. In sudden occlusion due to thrombosis other factors must be remembered, such as periarteritis nodosa, or the effect of bacteria on the walls of the arteries. Thrombosis of hematogenic origin must be remembered. Trauma, such as that produced by large cervical ribs, or by gunshot and stab wounds, or that due to some severe injury, may produce thrombosis.

The exact cause of sudden arterial occlusion may be difficult to determine. When cardiac disease is present, it is more than likely due to an embolus while in patients who obviously have advanced arteriosclerotic change in their peripheral vessels, the usual cause is a rapidly forming thrombosis in situ. The immediate treatment of sudden arterial occlusion is not dependent upon a correct diagnosis; this is a fortunate circumstance, since in many cases it would be too late to institute treatment should we wait to make an accurate differential diagnosis.

SYMPTOMS AND DIAGNOSIS

The routine examination of the extremities of bed patients is an highly important phase of the doctor's daily hospital rounds. Diligence in this respect is especially necessary in cardiacs, postoperative patients and the senile. The patient should be questioned as to whether or not he has pain or any other discomfort in his legs. Oftentimes the more considerate patient feels that the busy doctor should not be bothered with such trivia as a numb foot or an aching calf.

However, for the most part, the symptoms of sudden arterial occlusion are dramatic enough to make the patient complain. The commonest symptom is pain, though some patients do not seem to suffer with this condition. Numbness, coldness, tenderness and cramping are other symptoms, seen singly or in combination with other symptoms. In one of the two cases to be presented subsequently, the patient did not complain at all, but confessed to numbness in her foot after it was noted that the foot had turned a bluish-gray in color.

The effect upon the patient as a whole is variable and usually depends upon the severity of the pain. Some anxiety may be manifest upon the patient's face, he may perspire more freely and his heart rate may increase.

The initial symptoms may subside within 24 to 72 hours, and this cessation of symptoms may indicate rapidly progressive gangrene or slowly progressive recovery; in the latter case an ischemic neuritis usually supervenes.

Diagnosis is usually self evident. The surface temperature is lowered, the superficial veins are collapsed, the extremity is pallid, reflexes are diminished and arterial pulsations are absent.

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*Presented before the sixty-first meeting of the Delta Medical Society, Leland, Miss. April 1954.

The latter finding is most important and serves to differentiate this entity from acute thrombophlebitis.

The site of arterial occlusion may often be determined by palpation, though obviously there are times when the anatomic arrangement of the arteries precludes this accomplishment. If palpable, the site of occlusion is usually quite tender, and this site will ordinarily be several inches proximal to the beginning of the area of pallor and decreased temperature. The site of occlusion may often be more accurately located with the aid of an aneroid blood pressure device as an oscillometer[3].

Probably, most of the findings observed in occlusion of a peripheral artery are due to the spasm which occurs in the collateral arteries, and it is this spasm which must be relieved if the extremity is to be saved.

TREATMENT

About 80 per cent of the limbs affected with sudden arterial occlusion may now be saved if the condition is recognized within an hour or two and immediate therapy instituted. Local treatment consists of protecting the extremity from trauma and well intentioned hot water bottles. The former is accomplished by loosely wrapping the extremity in mechanic's waste held in place with loosely applied gauze. The latter is accomplished by repeated warnings to all concerned, that even though the extremity is cold, external heat adds insult to injury. The extremity should be elevated.

The first consideration is the relief of pain and anxiety with appropriate drugs. The second is the relief of arterial spasm. Papaverine ½ to 1 grain, may be given intravenously every three hours if necessary. The room temperature must be kept above normal. Two ounces of whiskey every two to four hours is helpful, both as a relaxer of arterial spasm and as an alleviator of apprehension. A continuous lumbar sympathetic block using a polyethylene catheter is often dramatic if the occlusion involves the lower extremities as it most often does. This therapy is easy to institute, and once set up, requires very little nursing care—if the catheter isn't obstructed by a clot! Spinal anesthesia will affect the same results. In the upper extremities, a stellate ganglion block, repeated every 12 to 24 hours, is usually indicated. Ruben has used continuous caudal block with success[4].

The anticoagulants should be started without delay to prevent propagation of the clot, heparin being used until the dicoumarol can take over.

If these measures do not produce immediate improvement embolectomy (in cases of embolism) must be considered and undertaken if feasible. Thrombectomy is seldom successful, especially more distally on the extremities.

CASE REPORTS

The first case is that of a 75-year-old white female admitted to the hospital with acute cholecystitis, a mass in the right colon, diabetes mellitus, and rapidly increasing debility. On the seventh hospital day the patient complained of severe pain and numbness in the left foot. The findings were consistent with those of acute arterial thrombosis. The patient's cardia status was satisfactory and no point of origin for an embolus was apparent. Treatment consisted of intravenous papaverine, continuous lumbar sympathetic block depoheparin dicoumarol, and supportive measures.

The patient soon became irrational, and though there was marked improvement in the foot at first, it soon became obvious that gangrene had begun. On the sixteenth hospital day, the leg was amputated. The arteries were all arteriosclerotic and a well organized thrombus was present in the posterior tibial artery distal to the level of amputation. The patient expired several days later. Autopsy revealed generalized arteriosclerosis, carcinoma of the right colon ond cholelithiasis.

The second case is that of a 71-year-old white female suffering from arteriosclerotic heart disease with congestive failure. On her third hospital day, it was noted that her right foot was cold and pallid. The patient said her foot was numb, but complained of virtually no pain. She stated that it had been numb on previous occasions, but that it had never changed color. Anticoagulants, papaverine, whiskey and supportive measures were begun. No sympathetic block was done. The status of this extremity gradually improved. The patient was discharged ten days after the occurrence of the embolus in an improved but far from well condition.

CONCLUSION

Early diagnosis, immediate treatment with spasmolytics, anticoagulants, and sympathetic block will save many extremities affected with sudden arterial occlusion which would otherwise be lost.

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Ethics of the Doctor's Wife*

MRS. GEORGE TURNER
El Paso, Texas

During the years when American women were just beginning to take an active interest in community and cultural affairs, doctors' wives became stimulated by a sincere desire to understand health problems and their proper solution. Thus, our auxiliary was founded by the doctors' wives who habitually attended medical meetings with their husbands. These "visiting ladies" were not the sophisticated, well-trained clubwomen of today. They were quiet and unassuming. Doctors who spoke of them invariably extolled their virtues in glowing and complimentary terms. They were called "helpmates" and the "sweet companions." Our first few years reflected that spirit of indulgent devotion.

It has been very interesting to me to note the change in the tone of the doctors and quality of these meetings. Definitely, there has been a very decided change. The "complimentary pat on the back" and the "sweet tolerance" have been changed to a concrete program of work with the expectation at all levels, that this work be carried out according to plan and schedule. If one is given to reflection, she must admit that no organization can ever be greater than the cause which brought it into existence, and also that no group ever springs suddenly into usefulness but is a gradual growth of ideas that have been nurtured through centuries of development. Our Auxiliary is no exception. While we like to think in terms of time and place and people—the year 1922 and the place St. Louis, Missouri, and the people, Mrs. S. C. Red and Dr. E. H. Cary—we are forced to recognize the fact that the organizing of doctors' wives into a body was mere recognition of a long-existent status. Where, then, did the medical auxiliary start? In whose heart was the first seed sown? Shall we give the honor to some ancient witch doctor's mate?

Carefully tracing the history, this honor belongs to Phaenaretes, wife of the physician Teraclides of ancient Greece. She was the mother of Hippocrates, who was destined to be called the Father of Medicine. It is interesting to trace the first seven years of her son's life and listen as she guides him toward his destiny. In his seventh year she sent him to Herodicus to be trained for the medical profession. Let us say then, that Phaenaretes envisioned the first auxiliary.

Having studied the past we note how close and parallel past and present run. In those early days, medicine was controlled by the Church or the State. The practitioners were priest-physicians who lived from monies from the State. They had no incentive to work or progress. Doctors were at ease in 480 B.C. because they were free of want, free of care, and free of the need to compete. To this life, Hippocrates was destined from birth.

No one knows exactly what circumstances caused Hippocrates to change the course and consequent history of medicine but we do know that into each life there does come a desire to change, to go forward, to be something more than we are and through our own efforts be able to improve the world about us. So Hippocrates became the man who separated Medicine from the State, and was the first doctor to practice professional medicine from his own office and receive a fee from his patients for his services.

It was Hippocrates who contemplated the magnificent stature of the physician, who dreamed the shining vision of Man as American democracy now conceives of men. He believed as we believe that men, given their freedom, can be trusted to fulfill their obligations and live up to the best that is within them. It was from this interpretation of men's attitudes toward one another that the modern expression of the physician's ethics and responsibilities have grown.

Hippocrates wrote the Code of Ethics for the medical profession and the Oath of Hippocrates, which is still administered to all doctors upon graduation from medical school. The PRINCIPLE OF MEDICAL ETHICS of the American Medical Association is based on the Code and this Oath.

Through all the centuries that have followed this advent of professional medicine, the physician has struggled toward the goal of that exact science which is medicine as it is practiced today. It is a long way to come from the charms and amulets of Hippocrates' time; from curious concoctions of the sixteenth and seventeenth centuries; and from the Colonial America that said a doctor must walk behind the coffin of his deceased patient to the cemetery. The latter, it must be added, walked as a free man, with none to dictate, except his own conscience. He exercised his immortal heritage to practice medicine and receive a fee for service rendered. And his wife was his helper, as she is today.

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*Address presented at the annual meeting of the Southern Medical Association, St. Louis, Mo., 1954. Mrs. Turner is president-elect of the Auxiliary of the American Medical Association.

Medical men of America now face a situation from which Hippocrates freed them over 2000 years ago, and are confronted with decisions as momentous as those of Hippocrates. The continuing threat of government intervention into all of our living, such as reinsurance of health insurance, compulsory social security at rising rates, which is "security" defined and forced upon us by law; increasing international tensions and entanglements; and the continuing equalization and distribution of wealth paralleled by a rapidly expanding welfare program are a few of the modern problems.

Would Hippocrates stand idle and silent now—indifferent to all of these situations which confront us?

Men have always had decisions to make, have made them, and lived and died by them. Our generation is no different in this respect, therefore, the auxiliary stands at the point of decision, too.

With this background in history, our accumulated experience and accomplishments, and the acknowledgement of our responsibilities, the choice of courses we must pursue is clearly marked for that which affects the doctor, affects the doctor's wife.

The Auxiliary offers us resources for sensible evaluation and for sound estimates of medical current events and attitudes. We are in a peculiarly advantageous position; we are an intimate part of the medical group; we are also of the laity. We know the aims of medicine but we have lived as laymen and understand that viewpoint. So, we are able to estimate the values from the two opposite angles. On the one hand, we see the physicians, struggling to keep their profession free of political control and best by psuedo philosophies which would force them to correct functional social maladjustments. On the other hand, we contemplate the laity, to whom the physician is called in case of real illness. Then, we ask ourselves these questions:

"Are these men's needs the same?"

"Can regimentation and delusion destroy one group and not the other?"

The answer is obvious. If we are to meet the challenge of the present, we must face our obligations to it, honestly and fearlessly.

First, it must be said that we, as wives of physicians, are expected to live under the same Code of Ethics as our husbands. If one wonders why the ethics of a doctor's wife should be any different from those of any other cultured, refined woman, let her remember that a doctor's wife is set apart in the community, whether she wishes to be or not. The mantle of health leadership fell upon the shoulders of the doctor's wife the day she married her doctor; the people in her community naturally look to her for guidance and help in health problems. Outside the realm of home, family, and church, the obligation of the doctor's wife is an active interest in her husband's profession, which can be met if she fulfills her duties as an auxiliary member. The diverse program of the auxiliary makes it possible for the member to choose the field for her contribution to her community. It may be something in which she is already trained or that in which she has a vital interest. Her community looks upon her as a reflection of her husband and his profession, wherever she goes, to whomever she speaks, whatever she does. She can be extremely usful to her community, and an able ally of the profession as a whole.

Although we have never had a verbal creed, we have always had a silent one: 'Loyalty and Service to the Profession." The Texas auxiliary has a printed "Credo for a Doctor's Wife" prepared by Mrs. Frank Haggard, a past-president of both the Woman's Auxiliary to the American Medical Association and the Woman's Auxiliary to the Southern Medical Association, which parallels the sentiment and complements the pledge taken by the doctors. This is its context:

1. I believe in the princples of the Woman's Auxiliary to the American Medical Association which fosters fellowship, benevolence, education, and patriotism.
2. I do solemnly pledge that I will be loyal to the profession of medicine, and just and generous to its members.
3. I will not be adversely critical of Auxiliary objectives and ideals, but will support its cause and will respect the rights of its members.
4. I solemnly promise to uphold the dignity of my husband's profession and will help him render service to humanity in seeking to secure for him the free and unfettered practice of medicine.

In substance these points say: We shall not discuss medical cases, and leave the prescribing to the doctor. We shall hold the profession in high respect, be loyal to it and guard its reputation. We shall be certain in advance that the part we play in our communities will reflect credit, not discredit to the profession. We shall bear in mind as an organization that it is mandatory that we adhere strictly to the policies the doctors have set up for us through our advisory councils. No new projects should be undertaken without their approval.

Secondly, we must be informed. We must know whereof we speak if asked about the problems confronting medicine in the community, state, nation, and internationally. We must be concerned with more than our own husband's practice or our own group. We must know and care what freedom from regimentation means to every man. We must study this situation from all angles, so that we will be able to think clearly and discuss, without bitterness or antagonism, controversial medical or social questions.

We are as a nation most blessed. Our problems, responsibilities, opportunities, and our freedom cannot be properly appreciated until we evaluate them in terms of comparison with the people of Free Europe and the people who are forced to live as captives behind the Iron Curtain in the satellite countries of Poland, Czechoslovakia, Hungary, Romania, Bulgaria and Albania.

Recently it was my privilege to inspect the strategic areas of Radio Free Europe as a guest of the American Heritage Foundation. Seventy-two other presidents of national organizations and civic leaders were my traveling companions and together we represented 55 million members of our organizations at home.

Radio Free Europe is composed of a network of 5 broadcasting installations, utilizing 23 powerful transmitters located in West Germany and Portugal. They reach an estimated 70 million people behind the Iron Curtain, bringing them the messages of truth, hope, and encouragement with which to bolster their determination to shake off the Soviet yoke and create their own opposition to the Communist régimes.

In Munich we visited R.F.E.'s main studios, transmitter stations, and motoring plant. We spent a day at the Iron Curtain and the balloon-launching site, from which the Crusade for Freedom directed more than 52 million pieces of anti-Soviet literature to Czechoslovakia alone from May to September, 1954. We, ourselves, launched balloons to Czechoslovakia and Hungary, thus sending grassroot American messages to the enslaved people behind the Iron Curtain. Each of us, also, recorded messages from our American organizations to these captive people, which will be translated and re-broadcast over R.F.E.'s powerful transmitters.

We traveled to Berlin where we were received by the Lord Mayor and the U. S. Commandant. We saw Soviet rule first hand during a U. S. Army tour of Berlin's Communist Sector.

In Paris we were briefed by general Alfred M. Gruenther, Commander of S.H.A.P's in Europe. He said N.A.T.O. is trying to build up military strength to prevent another war which is not inevitable. He commended R.F.E. on its work on public opinion behind the Iron Curtain and admonished us to go home and try to make the people in our communities understand the situation in Europe. R.F.E. is not trying to stir up revolt in the satellite countries, rather, it is trying to bolster their courage to stand up to their rights; national education on this situation here at home is a duty of all citizens. The necessity for dedication to service is far greater than it has even been before. He pointed out that in American we are concentrating too much on material things instead of developing dedicated Leadership among our people. On the other hand, the Soviets disregard the rights of the individual, even religion (a communist can not belong to a church). His parting remark was: "Let us keep up our strength and believe in our cause."

This piligrimage marks the start of the 1955 Crusade for Freedom Drive which have its climax during Freedom Week, 1955, between the period of Lincoln's and Washington's birthdays. The AMA Advisory Council to the Woman's Auxiliary has approved of the participation of our members in this notable and outstanding project.

The names of the national officers, directors, chairmen, state presidents, president-elect and editors of state auxiliary publications will be placed on the mailing list at the Crusade Freedom headquarters to receive material from time to time. Please circulate the information you receive as broadly as you can, so everyone will be informed of this program and be inspired to help in every way possible.

Thirdly, and in conclusion, armed with authentic information, guided by an innate sense of ethics, and spurred on by unbounded enthusiasm, we can set a course for ourselves which must ultimately win. Our course lies in the development of our program and projects:

1) AMEF, 2) *Today's Health*, 3) Nurse Recruitment, 4) Legislation, 5) Civil Defense, 6) Mental Health, 7) Public Relations, and all community Health Problems.

With these tools, and our heritage, rich in prestige, courage and life-giving pursuits, auxiliary members can assume their natural role—the winning course—which is "Leadership in Community Health."

Hospital for Crippled Adults

Mrs. Evan Fellman and Mrs. Walk C. Jones
Memphis, Tenn.

The Ladies Board of your Hospital for Crippled Adults is made up of twenty-five Memphis women, who are sincerely interested in working for the hospital and *with* you good Rotarians in the tri-state area.

The Ladies Board is elected by the Board of Directors of the Hospital for Crippled Adults at each annual meeting. We use the normal organizational structure, with a president, vice-president, recording secretary, corresponding secretary and treasurer.

Each member of the Ladies Board has a definite, working assignment on one or more of the

Devotionals

Gray Ladies—Two of our members are also Gray Ladies and give us very interesting reports of their activities.

House Committee—Whose job it is to keep up with necessary cleaning or repairing of properties, especially in the reception room.

Hospital Equipment—This group brings to the board suggestions for additional smaller equipment which our limited budget might allow us to purchase and give the hospital from time to time. Our current projects, in addition to the refurnishing of the women's wards, are such things as a deep-freeze, a hot-pack machine, or in proper "hospital terms," a hydrocolator, stainless steel pitchers for the kitchen, etc., etc.

Grounds—Whose job it is to look after upkeep and replacement of shrubbery, etc.

Publicity

Entertainment—This committee is organized to furnish refreshments when we have parties for the patients on special days like Thanksgiving and Halloween. We think the patients enjoy most of all the annual picnic, at which time all who can be moved are taken outdoors to enjoy fried chicken and embellishments, to the current tunes of the best available "hill-billy" band.

Program—This group scouts around to find willing local talent to entertain the patients at these special times.

Cards and telephone—Systems of communications for the patients.

Flowers and Magazines

Memorials—Last, but not least, this committee tries to interest friends of the hospital in giving memorials to the Ladies Board to help in carrying on our worthwhile projects.

The Ladies Board is mighty proud to be part of the working force of this institution that becomes more imposing and inspiring than ever, in these days of encroaching controls. This hospital is the only one in the world built, equipped and operated solely to give free orthopedic surgery and hospitalization to physically handicapped patients twenty-one years of age and over.

It neither conflicts with nor duplicates the work of any other institution in the world.

Not one of our patients has ever paid one penny for hospitalization or medical service.

Not one penny has ever been paid any doctor for services rendered. The hospital does not consider its services as charity, even though no patient is admitted who can pay for service or obtain it elsewhere—it is an investment in the human resources of our country.

Of course you have read these words before, or heard them, and they must fill your hearts with real pride and satisfaction. Words which seem to make this project the great thing it is: Give — Free — Services — Handicapped Adults — Investment — and Human Resources. It seems to me *they* are the real keynotes of your truly exclusive *achievement.*

The conception, construction, and operation of this hospital has been and *is* a 100 per cent American-way plan. It is a free enterprise in every sense of the word. Neither federal nor state controls hover over it, and we pray they never shall. It is *not* affected by politics. It is non-sectarian. It may well be called a perfect example of welfare work, completely removed from anything that even resembles a "welfare state."

One of our case histories I have had the privilege of reading recently pays a beautiful tribute to the work of the hospital staff, and I mean the *entire* staff, from the surgeons on down to the orderlies or porters. This patient had a tremendous job to do in the way of building up his own mental fortitude. But, in spite of setbacks, in the way of repeated accidents to himself and others in his family, he was determined to find a way—and he did. He entered our hospital December, 1931, and left in March, 1932. He took a law course from the State Vocational Rehabilitation Division, which he was able to get through the cooperation of the hospital. After nine months of

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Talk given by Mrs. Evan Fellman, president of the Ladies Board, before joint Rotary Conference of Districts 204 and 236 at Peabody Hotel on Monday, March 21, 1955.

study, *from scratch,* he took the Tennessee Bar examinations, competing with law students from *four-year* law schools. He passed—one of 98 out of 289. He has since found his law training very helpful in his present work for the Railway Postal Department, as well as in his other activities.

For almost twenty years now he has sent a check for $100 to the Hospital at Christmastime. Even though he says it isn't always easy to do, he sends it, to help some other unfortunate person over a bad spot. He attributes most of the fine things he learned to the wonderful treatment he received so *unstintingly* from the staff, at the Hospital for Crippled Adults.

What finer endorsement of the Hospital's work could there be than this tangible gesture from a man who could not even afford to get treatment elsewhere, when he was admitted to your Hospital?

A reprint from an article from the *Wall Street Journal* written by Dr. Anderson from Booneville, Mississippi, on the subject, "Employ the Handicapped—Good Business" ends with this significant sentence—"It is sheer righteousness to do a *full-measure* job of rehabilitating and training our handicapped."

That phrase "full-measure job" presents a real challenge to the Rotarians of the tri-states. The Hospital is running at only about 60 per cent capacity at present.

It *may* be that there are no longer any really poor, deserving cripples in our area, in spite of high taxes and high whatnot! At any rate, we hope the Rotary wheel of "service above self" will continue to roll over hill and dale, down narrow lanes and broad highways, *seeking eligible* cripples who can be helped back to usefulness because they otherwise cannot become self-supporting nor truly happy again.

"What happiness is, no person can say for another. But no one, I am convinced," said John Mason Brown, "can be happy who lives only for himself." The joy of living comes from *immersion* in *something*—more accurately, *anything* —that we know to be bigger, better, more enduring and worthier than we are. People; ideas; causes; above all *continuities*—these offer the one possible escape, not merely from selfishness, but from the hungers of solitude and the sorrows of aimlessness.

"No person is as uninteresting as a person without interests. The pitiful people are those who in their living elect to be spectators rather than participants; the tragic ones are those sightseers who turn their backs deliberately on the procession.

"Existence is a strange bargain. Life owes us little; we owe it everything. The only true happiness comes from squandering ourselves for a purpose."

NEW EXHIBIT ON ALCOHOLISM

The startling fact that "one out of 16 adult men and women drinkers becomes an alcoholic," is borne out in a new medical exhibit on alcoholism currently in production by the A.M.A.'s Bureau of Exhibits. To be unveiled at the association's annual meeting in June in Atlantic City, this exhibit discusses the etiology, diagnosis, and treatment of the disease, and shows the progressive stages from an occasional drinker to the alcoholic. Particularly stressed are the many procedures employed in treating acute alcoholic intoxication as well as chronic alcoholism, including total abstinence, hospitalization, restoration of fluid balance, and compensation for dietary deficiencies by prescribing high carbohydrate intake, vitamins, etc.

The exhibit, which is being prepared in cooperation with the Committee on Alcoholism of the A.M.A. Council on Mental Health, will be available for showings at state medical society meetings and allied professional gatherings after July 1.

AGES 13 AND 14 "ROCK BOTTOM" FOR VITAMIN C

Boys and girls 13 and 14 years old "hit rock bottom" in Vitamin C intake, according to Dr. Pauline Beery Mack, research nutritionist and dean of College of Household Arts and Sciences, Texas State College for Women.

Dr. Mack reported on her survey of the food intake of 2,550 children and teen-agers and 2,200 adults at a recent Conference on Research in Nutrition and Medicine arranged by the Florida Citrus Commission.

Not a single boy of the 13-14 age group consumed enough Vitamin C, necessary in tooth formation, bone growth, and maintenance of the gums and blood vessel walls in proper condition. Only one girl in four came up to par. Dr. Mack recommends that teen-agers, when snacking between meals, drink orange juice, since it provides sugar for energy plus Vitamin C.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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EDITORIALS

TO THE COAST!

It is always good to go to the Mississippi Coast for our state meeting. The paying and playing public of the nation are turning more and more to beauties and attractions of our Mississippi Coast. The silvered moonlight, the lilting songs of the mockingbird, the expansive beaches, the fine foods, and the cosmopolitan contacts that grace coastal sojourning have lifted that area to rivalry with Florida and California.

The medical atmosphere is growing on the Coast also. It is the home of our state president, who has been very active this year and has rendered a fine service, Dr. Cummings McCall. It is also the home of Dr. E. C. Parker, dean of Coast medical knowledge and progress. A fine program is in waiting for us and every doctor who can possibly attend should be present at the state meeting. Let us show our appreciation to our able and active president, improve our efficiency by hearing the scientific papers and do our part in organized medicine.

On to Biloxi, May 10, 11, 12.

VISIT THE EXHIBITS

Don't forget the exhibitors at the state meeting. They have a vital part in medical service. The research men who work long and hard deserve much credit. The exhibitors do a big part in paying the expenses of the association.

A REAL CHALLENGE

Mississippi has envisioned and is seeing realized a great hospital system. When these fifty-four community hospitals are completed no state in the union will have a better hospital coverage. It is largely an affiliated system or will be when the four-year medical school is in action with its central hospital.

Medical service in the modern hospital has been stepped up to a high rung. This means of course that the necessary cost has been advanced. Voluntary insurance has come to the rescue and has helped in a wonderful way in financing the hospital. Yet many hospitals are finding it hard to make ends meet on expenses. The question is, how to give the service the people want and demand on the money available. The important problem challenges the sincere efforts and cooperation on the part of the hospital, the doctor, and the people. Its solution will determine significant trends in medical service.

SENDS GREETINGS

Dr. Dudley Jones of Jackson, a past-president of the State Medical Association, now more than fourscore years, advises that he will not attend MSMA this year. Dr. Jones belongs to the Fifty Year Club. He has served his people exceedingly well as a general practitioner and has always given of his time, his knowledge and his wisdom in organized medicine. If service to other people is the measure of greatness, Dr. Dudley Jones should be ranked very high. He is ethical in the practice of medicine, true to his clientele, and loyal to principle and friends.

TRIBUTE TO DR. DYE

The luncheon for the Fifty Year Club will be at noon Tuesday in the Sun Room at the Buena Vista Hotel. Drs. LeRoy and William Wilkins will be the hosts. They are giving this luncheon in memory of Dr. T. M. Dye who served so long and so faithfully as secretary of the Mississippi State Medical Association. It is also fitting that Dr. LeRoy Wilkins is to deliver the Distinguished Service Oration at the public meeting at eight o'clock and we understand his tribute will be to Doctor T. M. Dye.

DR. NOBLES

Sadness was felt throughout professional circles, and grief was sincere on the part of terminal cancer cases when the news went out that Dr. E. R. Nobles of Rosedale had suddenly passed to his reward.

Dr. Nobles possessed a brilliant mind. He was a fine student in college and medical school. He was able in the practice of medicine and surgery. He gave liberally and ably of his time for organized medicine. He rendered special service in helping to secure the passage of the law that provides for the per capita distribution of funds for the indigent sick. He has been outstanding in supporting the cancer program of our state and nation. His service was especially felt in bringing relief for the terminal cancer case. In this he did a monumental work.

He was active and outstanding as a citizen of his community; generous in heart and a broad thinker. He was a delightful and a loyal friend. We were glad to claim him as a college mate and as a friend and we appreciate his footprint in organized medicine. This journal joins others throughout the state in offering sympathy to Mrs. Nobles and the family.

Tupelo now has a pathologist at the Community Hospital, one who is worthy and well qualified, Dr. Lawson C. Costley, Jr. We congratulate the doctors of Tupelo and the hospital. An able pathologist is a big asset to a hospital, a fine service to the people and it brings an indispensable field of practice within the reach of all.

We are sure our able and popular speaker of the House of Delegates will be right on the ground. His first assistant, the year-old son, may be asking for membership in the Association. With his background, we move he be granted.

News and Comment

DR. J. O. CRIDER

wood It is really past time to pay tribute to whom tribute is due when we present Dr. J. O. Crider of Greenwood. First, we might give a little Who's Who resumé just to fix him in our archives.

Born in Virginia. M.D. from University of Virginia 1912.

Instructor in Physiology, University of Virginia 1912-1913.

Associate Professor of Physiology, University of Mississippi 1913-1916.

Assistant Dean, University of Mississippi School of Medicine 1916-1924.

Professor of Physiology, University of Mississippi 1916-1930.

Dean, School of Medicine, 1924-1930.

Assistant Dean, Jefferson Medical College 1930-1942.

Associate Professor of Physiology, Jefferson Medical College, 1930-1940.

Professor of Physiology, Jefferson Medical College, 1940-1953.

Professor of Physiology Emeritus, Jefferson Medical College since 1953.

Publications on gastro-intestinal physiology and physiology of the pancreas in many of nation's leading professional journals.

Membership in American Physiological Society, Sigma Xi (honorary scientific society), Physiological Society of Philadelphia, American Association of the Advancement of Science, Alpha Omega Alpha (honorary society), Raven Society of the University of Virginia, American Genetic Society, and Theta Kappa Psa, medical fraternity.

Dr. Crider is one of our state's great who helped our medical school to greatness. For about fifty years the University of Mississippi has had a two-year medical school that has been favorably known throughout the nation. The young men graduating from this school have been able to rank with the best students in our other medical schools of the country. This two-year school set a precedent of thoroughness and nobility of purpose in its students.

For establishing this standard two-year medical school, no one man, in our opinion, is due more credit than Dr. J. O. Crider. At times students thought their professor was hard and maybe a bit heartless, but this was not really the case. He was eager to turn out students in whom the school might always have great pride. He had no time for sham, but the student who was ambitious to excel, who was sincere in purpose, had a great friend in Dr. Crider. He himself was the best student of his subject and he was very painstaking in instructing every student. Doctors and students and the citizenry of our state appreciate the service he has rendered in medical education. We are sure he still possesses medical knowledge and wisdom of great value that might be utilized. Although he is presently retired from teaching, we trust his remaining years may yet be very productive. Our salute to you, Dr. Crider.

WILKINSON-AMITE COUNTY

The Wilkinson-Amite County Medical Society held its quarterly meeting Thursday night, March 31 at the Field Memorial Community Hospital at Centerville. Two guest speakers from McComb, Mississippi, Dr. Verner S. Holmes (EENT) presented some of the newer methods of treating infections of the ear, nose, and mastoid. Dr. Wendell Holmes (ophthalmology) discussed some newer phases of treating infections and injuries of the eye.

Dr. and Mrs. Paul Jackson and Dr. C. Toler from Clinton, La., were guests. As usual an excellent dinner was served the society by Miss Mary Bowls and her staff of nurses.

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   - Insole extension and wedge at inner corner of the heel where support is most needed.
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Emerson once said, "Every man I meet is in some way my superior, and in that I can learn from him."

Fifty Year Club Biographica

RICHARD NOBLE WHITFIELD

Richard Noble Whitfield, son of Reverend Robert Allen and Mary Fitzhugh Whitfield, was born in Fannin (Rankin County) on February 1, 1879.

Following graduation from Steens Creek High School, he attended Millsaps College and was graduated from the University of Nashville, School of Medicine, in 1905. He did postgraduate study in vital statistics at Johns Hopkins School of Hygiene.

Around 1900, he served as secretary to the State Superintendent of Education. From 1910 to 1919, he served as a field director for the State Board of Health and from 1919 until 1923 did general practice at Florence. Since January 1, 1924, Doctor Whitfield has been director of the Division of Vital Statistics, State Board of Health. During this time, he has held several honorary offices. For two years, he served as chairman of the Vital Statistics Section of the American Public Health Association. In 1943, he served as president of the Mississippi Public Health Association; in 1947 as president of the Federation of State Medical Boards of the United States. And, in 1952, he became a member of the National Board of Medical Examiners. He is co-author of Volumes I and II, *History of Public Health* and *Medical Licensure in Mississippi.*

Doctor Whitfield is a member of the Eastern Star, a Mason, and member of the Baptist Church.

At a recent meeting of the Mississippi Public Health Association, he was honored by the Vital Statistics Section upon completion of thirty years of service as Director of the Division of Vital Statistics.

Late in 1954, Doctor Whitfield was honored with lifetime membership in the Fifty-Year Club of the State Medical Association.

Doctor Whitfield is beginning his thirty-second year as director of the Vital Statistics Division of the State Board of Health. He also serves as assistant secretary of the Board and in this capacity performs certain duties in connection with medical licensure. The division he directs has frequently been cited for progressive methods used and accomplishments shown.

Doctor Whitfield, who resides at Florence, continues to serve his fellowman faithfully and well upholding, always, the high tradition of medicine in Mississippi

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(Remarks of Dr. Felix J. Underwood in presenting Fifty-Year Certificate of State Medical Association to Dr. Richard Noble Whitfield, March 1, 1955)

Mr. President and fellow members of the Central Medical Society, I esteem it an honor to be asked to make this presentation on behalf of the State Medical Association, the Central Medical Society, and the officers and members of the Fifty-Year Club. Of all the physicians and public health people that I have known and have been associated with, no one of them has surpassed in integrity, in medical ethics, in good citizenship and in devotion to duty Dr. Richard Noble Whitfield, the man whom we honor tonight.

The doctor was born in Fannin, Rankin County, Mississippi, February 1, 1879. Following graduation from high school, he received a B.A. degree from the University of Mississippi, and in 1905 was awarded his medical degree from the University of Nashville, Nashville, Tennessee. After the granting of Mississippi medical license by the State Board of Health, based on written examination in May, 1904, the doctor engaged in the general practice of medicine until 1910. From September, 1910, until January, 1919, he was employed by the State Board of Health for field epidemiological services, returning to the general practice of medicine from January, 1919, until December, 1923.

On January 1, 1924, Dr. Whitfield was selected by the State Board of Health as director of the Division of Vital Statistics, and has served continuously and most successfully since that time. Doctor Whitfield was awarded a Rockefeller Foundation Fellowship for study at Johns Hopkins University during 1925, devoting most of his time at the university to the study of public health statistics.

He served as chairman of the Vital Statistics Section of the American Public Health Association during the years 1941 and 1942, and was elected Vice-President of the Federation of State Medical Boards of the United States in 1942. He also served that year as president of the Mississippi Public Health Association. In 1947, the doctor was elevated to the presidency of the Federation of State Medical Boards of the United States and became a member of the National Board of Medical Examiners in 1952. He was named Assistant to the Secretary and Executive Officer in charge of medical license in July, 1946.

The doctor is alert and vigorous, apparently getting great pleasure and satisfaction out of his daily work in public health statistics and medical licensure. He has developed a special hobby which helps keep him young. This hobby is cabinet-making. He has equipped a special shop at his home for this work, which he does evenings and weekends.

ABSTRACT FROM PEDIATRIC LITERATURE

HARVEY F. GARRISON, M.D.

COMPLEMENTARY FEEDS—BY SPOON OR BOTTLE? R. S. Illingworth and J. Barlow. Arch. Dis. Childhood 29:422-423 (Oct.) 1954.

It has been stated that if complementary feeds are given during the period when lactation is established they should only be given by the spoon. The authors quote Naish among others as saying: "Once a baby is introduced to the bottle, there is a very great danger that it will either refuse the breast entirely, or work the breast insufficiently, so that the milk supply is inadequately stimulated." Since it takes much longer to give complementary feeds by spoon, the authors decided to conduct a controlled experiment in order to determine whether this method of giving complementary feeds is really necessary. One hundred full-term babies were studied, 50 being given their complementary feeds by spoon instead of by bottle. It was found that the giving of complementary feeds by spoon instead of by bottle presented no advantage in relation to the incidence of breast feeding and the effect on the mother's breast milk production. The slight differences in the two groups, though not of statistical significance, were in favor of the bottle-fed group.

COMMENT:

This is a very timely article and the authors seem to have the right viewpoint. Complementary feeding is frequently necessary, however, this should be done by the bottle. The baby should nurse the breast ten minutes then change to the bottle. Then if the baby takes as much as 1½ to 2 or more ounces from the bottle after nursing the breast ten minutes, this should be sufficient for the baby. I have of course prescribed the feedings for thousands of babies and have often given complementary feedings. I will not be a stickler for or against complementary feedings. I would say, however, it is largely a question of satisfying both the mother and the baby. When it is seen that the breast milk is not sufficient, then the baby should by all means be put on the bottle altogether. There are many babies that are starving to death on the breast. On the other hand, thousands of mothers that should be nursing their babies, are not. It is not unusual for those of us who have to practice on babies and children to see a little baby who is virtually starving to death and not satisfied with any kind of feeding. By all means, the physicians in this country should re-evaluate their own work and insist on more mothers nursing their babies. But by all means other feedings should be started by the time the baby is 2½ or 3 months old. Feedings begun too early are detrimental. Many of us have fallen into that trap of ultra-modernism by beginning to feed many infants at two or three weeks, which, in a majority of cases, is a big mistake.

H. F. G.

Miranda Ortiz, E. and Gonzalez Calzada, D., *Palliative Treatment of Poliomyelitis, Preliminary Report on Use of Colloidal Iodine Solution, Medical Times* 83:107 (Feb.) 1955.

A series of 80 cases of poliomyelitis observed during a severe epidemic in Mexico City in 1948 was treated with slow intravenous or intramuscular injections of iriodine. Iriodine is a neutral, isotonic, colloidal iodine solution containing potassium iodide 10 mg., iodine 10 mg. and beta amylose 100 mg. in 5 cc. of distilled water. The rationale of the beta amylose colloidal medium is the fact that the iodine element is held firmly by absorption, to be released as free iodine gradually as needed on contact with the blood.

The group included 5 acute cases, 65 chronic, and 10 which were omitted from consideration because of incomplete scientific data. In all 5 acute cases, treated exclusively with iriodine, tenderness, muscular pains and contractions disappeared in 24 to 48 hours. All of these patients recovered completely in 3 weeks to 3 months, leaving no clinical signs of the disease.

All 65 chronic cases showed some degree of ultimate improvement, but none of the long standing cases recovered completely. There were no ill effects from the medication except a mild rash in a few instances.

In the authors' previous experience with acute poliomyelitis in Mexico, the recovery rate was approximately 50 per cent. In the present series, there was no deviation in results, inasmuch as there was 100 per cent recovery in all 5 cases treated with iriodine. These results would seem to be statistically significant for a small series. However, further clinical investigation should be conducted on a larger scale.

MOTION PICTURE FILMS

A completely revised fourth edition of "Professional Films" is now in compilation. It will include new sections providing biographical data on authors, and information on the audio-visual activities of medical schools, dental schools and graduate teaching centers.

Over 28,000 copies of previous editions are in use by medical and dental schools, program chairmen of state and specialty societies, and others here and abroad. AIM provides this valuable audio-visual information to the profession-at-large, without profit, as one of its contributions toward elevating the standards of medical and dental services by expediting the dissemination of professional knowledge. Write to the Academy-International of Medicine, 601 Louisiana Street, Lawrence, Kansas.

GO TO BALTIMORE SCHOOL

Home-bound children throughout the United States, unable to attend regular schools because of crippling or confining diseases or physical conditions, attend a Baltimore school by mail.

They go to the Calvert School, an unendowed non-profit institution that for almost 50 years has given an elementary school education to children who cannot attend regular schools. Calvert's courses run from kindergarten through the ninth grade and are accredited by the state of Maryland.

According to Edward Brown, Calvert's headmaster, children with heart conditions make up about 20 per cent of Calvert's shut-in students. Polio patients account for about 15 per cent, chronic asthma for about 10 per cent, and eye, ear and speech defects for about 15 per cent. Muscular dystrophy, cerebral palsy, diabetes and hemophilia are among the other causative factors affecting Calvert's home-bound students.

When a Baltimore whooping cough epidemic in 1905 forced the Calvert Day School to close, the headmaster sent the lessons home with the pupils. This experimental home study system proved so successful that some parents of shut-in children in Baltimore asked for the service regularly. After some years of working only with the home-bound, Calvert extended its service to children living in isolated areas or living abroad where American schools were not available. Today there are 8,000 children in Calvert's worldwide student body.

ANNOUNCEMENT

The Sanders Clinic announces the return of Turley Farrar, M.D., for the practice of general, thoracic and vascular surgery, 899 Madison Ave., Memphis, Tennessee.

DEATHS

DR. EUGENE R. NOBLES

Dr. Eugene R. Nobles, pioneer in hospitalization for Mississippi cancer patients, died April 16 after a heart attack.

Co-workers credited the 65-year-old Dr. Nobles with authoring the present hospitalization plan. Before that, they said, cancer patients found many charity hospitals inaccessible.

Dr. Nobles was chairman of the executive committee of the American Cancer Society at the time of his death. He had been chairman of the state board of directors and chairman of the service committee of that group.

He also was a member of the national service committee of the American Cancer Society and chairman of the Hugh Agnew Gamble Memorial Fund for care of terminal patients.

Dr. Nobles was born in Flora, Miss., in 1888, and was educated at Mississippi College, and the University of Tennessee School of Medicine, where he received his M.D. degree in 1911. He has built a distinguished practice in the Delta where he has spent all of his professional life.

Dr. Nobles has held various offices in the Mississippi State Medical Association, which he attended with faithful devotion.

He leaves his widow; a son, Dr. E. R. Nobles, Jr., of Boston, and a daughter, Mrs. Newton Allen of Memphis.

DR. P. H. SALMOND

Dr. Paul Hammersley Salmond, 70, a native of Scotland and chief of services at the Gulfport Veterans Hospital, died suddenly February 28 at the hospital. Dr. Salmond, who was retiring from the Veterans Administration because of a heart condition, had gone to the hospital to bid farewell to his friends and the staff when he was stricken suddenly ill and died.

Dr. Salmond was born Sept. 17, 1884, in Glasgow, Scotland, the son of the late Rev. Charles A. Salmond, D.D., and Mrs. Salmond. He was educated at George Watsons College, the University of Edinburgh, and the University of Manitoba, Canada, where he received his medical degree in 1920. He served his general internship at Misericordia Hospital, Winnipeg, Canada. He was a member of the American Board of Psychiatry and Neurology and a fellow of the American Psychiatric Association since 1936. He was also a member of the Century Club in the American Psychiatric Association.

Dr. Salmond received postgraduate training in experimental psychiatry at Johns Hopkins, the New Haven School of Physiotherapy, Phipps Clinic, Baltimore, Md.; the University of Maryland Mental Hygiene Clinic, and Vanderbilt Neurological Clinic.

He served as clinical director of the Richmond State Hospital, Richmond, Ind., from 1940 to 1942, and served as psychiatrist for the Armed Forces Induction Board from 1942-44. He also served as city-county psychiatrist in Dallas, Texas, from 1942 to 1944. Dr. Salmond was also an instructor in psychiatry at Baylor and Southwestern College of Medicine, Dallas, Texas.

Dr. Salmond was a 32nd degree and Scottish Rite Mason, a member of Heller Shrine Temple, Dallas, and the Coast Shrine Club.

During World War I, before he received his medical degree, he served as a captain in the quartermaster corps in the Canadian Expeditionary Force in England and France.

Dr. Salmond, who has been in Gulfport since 1947, is survived by his wife, Mrs. Marie Anne Salmond, Gulfport; two brothers, Charles W. Salmond, Pittsburgh, Pa.; and Robert S. Salmond, Regina, Saskatchewan, Canada; four sisters, Mrs. J. Pearson Sutherland, Glasgow, Scotland; Mrs. John Mailer, Edinburgh, Scotland; Mrs. Graham Girling, Marpeth, Northumberland, England; and Mrs. Wilfred Handy, Valparaiso, Chile.

DR. O. N. ARRINGTON

A beloved native of Lincoln County died on January 14 when Dr. O. N. Arrington, 77, died in Brookhaven after a long illness. He had spent all of his life in Brookhaven, except for the years he was getting his education. He received his M.D. degree from Tulane University School of Medicine in 1907.

Dr. Arrington had served as secretary to the Tri-County Medical Society and as vice-president to the Mississippi State Medical Association. He was a veteran of the Spanish-American War.

Services were held from the Brookhaven Funeral Home, January 15.

DR. JOSEPH M. BYNUM

Dr. Joseph M. Bynum, retired physician of Prentiss County, died on January 12 at the Northeast Mississippi Hospital of cerebral thrombosis, at the age of seventy-nine. Dr. Bynum had lived most of his adult life in Booneville, Miss., but had relinquished his professional work, devoting his time the past thirty years to farming interests.

Dr. Bynum received his M.D. degree from Vanderbilt School of Medicine in 1901.

He is survived by one daughter, Mrs. Mary Rees Bynum Hambrick, of Booneville, Miss.

DR. LON W. DOTSON

Dr. Lon W. Dotson, retired West Point, Miss., physician, died at 3:30 a.m. Sunday morning at the Methodist Hospital in Memphis.

Dr. Dotson was born in Westmoreland, Tenn., Feb. 15, 1882, the son of the late Mr. and Mrs. H. J. Dotson. He attended schools there, and was graduated from the University of Nashville Medical School.

He did postgraduate work at the University of Chicago, specializing in eye, ear, nose and throat. He also studied at Vienna University, Vienna, Austria, in 1924.

He married Miss Belle Herod of Pleasant Shade, Tenn., in 1904. He moved to West Point in 1911, and practiced there until his retirement in 1949. He had made his home with his daughter, Mrs. C. W. Emerson of Hernando, for the past three years.

Dr. Dotson was an active Mason and Shriner, and was a past worshipful master of West Point Lodge and an honorary member of Hernando Lodge. He was particularly interested in organizing new Masonic lodges. He was a member of the Church of Christ.

He leaves two daughters, Mrs. Emerson and Mrs. Franklin D. Cooper of DeWitt, N. Y.; two brothers, Jeff Dotson and Paul Dotson of Westmoreland, Tenn., and four grandchildren.

DR. F. L. SUMMERS

Services for Dr. F. L. Summers, who died April 3 at South Mississippi Infirmary, were held April 5 from Quigley's Funeral Home. Burial was in Brookhaven.

Dr. Summers, who was 71, had practiced medicine in Hattiesburg for 45 years. He was graduated from Mississippi College in 1904 and received his medical degree from the University of Tennessee in 1908.

He was a member of the First Baptist Church and the Topisaw Masonic Lodge of Lincoln County.

Surviving are his wife; a daughter, Mrs. E. R. Lawhon; and a grandson, all of Hattiesburg.

DR. C. F. FREELAND

Services for Dr. C. F. Freeland, physician of the Glendora community who died February 3 at the Greenwood Leflore Hospital after a long illness, were held from the Glendora Methodist Church.

The Rev. J. W. Graham, officiated. Burial was in Gatesville, Texas, where graveside rites were held.

Dr. Freeland, who was 71, was a graduate of the medical school of Vanderbilt University. He was a member of the Methodist church.

Surviving are his wife, Mrs. Mae Freeland of Glendora; one brother, the Rev. Homer Freeland, Presbyterian minister of Rust, Texas; and five sisters, Mrs. R. E. Blair, Mrs. J. D. Morgan, Mrs. Frank Kelso, and Mrs. M. D. Clark of Gatesville, Texas, and Mrs. L. E. Stewart of Brownsville, Texas.

DR. R. F. PAYNE

Dr. R. F. Payne, 72, died at his home in Jackson on March 22. Dr. Payne, a native of Birmingham, Ala., was a former resident and practicing physician of Gloster, Miss., for many years.

He had lived in Jackson for four years. He was a Mason and a member of the Methodist church.

Dr. Payne is survived by his wife, Mrs. Ether King Payne; three step-sons, Allen Roy King of Gadsden, Ala., Joe King and Ted King, both of Jackson; one brother, R. H. Payne of Silura, Ala., and two sisters.

There is more power in the open hand than in the clenched fist.

Woman's Auxiliary

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A.M.A. CONVENTION

June 6-10, 1955—Atlantic City, New Jersey

Reservations must be made through Doctor Robert A. Bradley, Chairman, Sub-committee on Hotels, 16 Central Pier, Atlantic City, New Jersey. A list of hotels, with rates, will be found in current issues of the Journal of the A.M.A.—also a reservation blank which you are requested to use in making your reservations.

Headquarters will be at Hotel Haddon Hall, and registration will open at noon, Sunday, June 5. Mrs. David Allman of Atlantic City is the chairman of the committee on arrangements.

DAILY DILEMMAS OF THE DOCTOR'S WIFE

(Written and presented by Mrs. W. M. Wood of Leake County at the Doctor's Day banquet held in March.)

We wonder why we ever said yes that day so long ago;
We signed away lives ordered and seemingly by simply not saying no.
'Twas certain soon after the honeymoon a doctor's wife becomes the minority,
For over attention and romance someone's gallbladder takes priority.

Doctors' wives, a painstaking lot, are expected to set good examples,
Not only to be healthy and strong but to have illnesses for which there are samples.
Can we count the times, routed from a comfortable bed
To make breakfast at four a.m., we're tempted to serve eggs on his head?

How often blood pressure rises from mental anguish no psychiatrist can abate
Because the range has not yet been invented that serves dinner three hours late!
We can't R.S.V.P. with certainty, or go out on merry sprees;
We can't even drive out the city limits because of expected deliveries

Despite all our woes and tribulations, we appreciate him when he's home;
And for all our listening to medical data, we venture prescribing on the phone.
We keep our homes sterile and orderly and teach our children what's good and what's bad
And never neglect pointing to Doc's picture, saying o'er and o'er, "That's Dad!"
We acquire a super intelligence, from hearing of every ism and itis;
It isn't every profession's spouses who can have chronic neuro-dermatitis!
However, despite all the woes that belabor our dejected lives,
Our doctors, we love them—So happy, happy Doctor's Day from your loving wives!

THE BIG "IF"

If cancer had been conquered only ten years ago, the nation would not have lost to cancer such outstanding personalities as Senators Taft, McMahon, Wherry, and Vandenberg, or such military figures as Generals Stilwell and Vandenberg, and Admiral Kalbfus.

If cancer had been conquered only ten years ago, the sports world would not have lost to cancer such outstanding personalities as Babe Ruth, Ed Barrow, Walter Johnson, "Pop" Warner, Chief Bender, and "Battling" Nelson.

If cancer had been conquered only ten years ago, we might still be entertained by the talents of Eddy Duchin, Gertrude Lawrence, Jane Cowl, and many of the other artists.

If cancer had been conquered only ten years ago, more than 2,000,000 Americans would not have died of cancer.

If cancer had been conquered only ten years ago, more than 800,000 heads of families would not have died of cancer.

If cancer had been conquered only ten years ago, more than 30,000 children would not have died of cancer (including leukemia).

If cancer had been conquered only ten years ago, the parents of these more than 30,000 children would not have undergone the tragedy of watching their children die of cancer.

Cytology, using the Papanicolaou smear technique, is being extended to many body sites, in addition to the cervix, as an aid to earlier diagnosis of cancer. A mechanical scanner, to interpret smears, is being constructed experimentally.

Last year reputable scientists sought $8,600,532 in grants from the American Cancer Society but the Society because of the lack of funds at hand could grant only $5,242,167.

BOOK SECTION

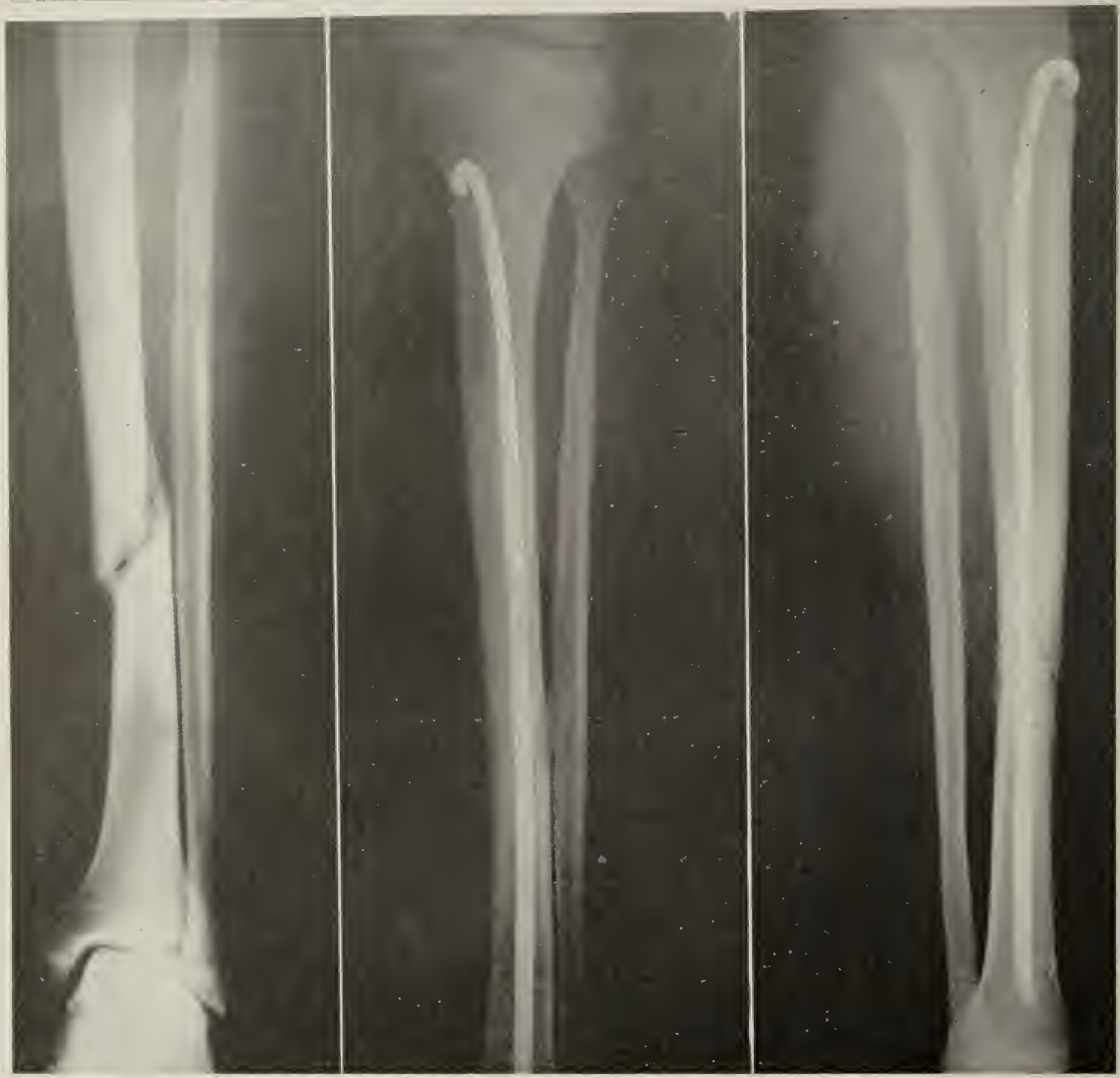
INSTALLMENT 12

Atlas of Rush Pin Technics

Department of Surgery
Rush Memorial Hospital
Meridian, Miss.

This is the twelfth of a series of monthly installments to be published in *The Mississippi Doctor* during the coming year. The monograph on fracture surgery will be available in bound form in 1955.

Copyright 1954 by Leslie V. Rush, M. D.



21

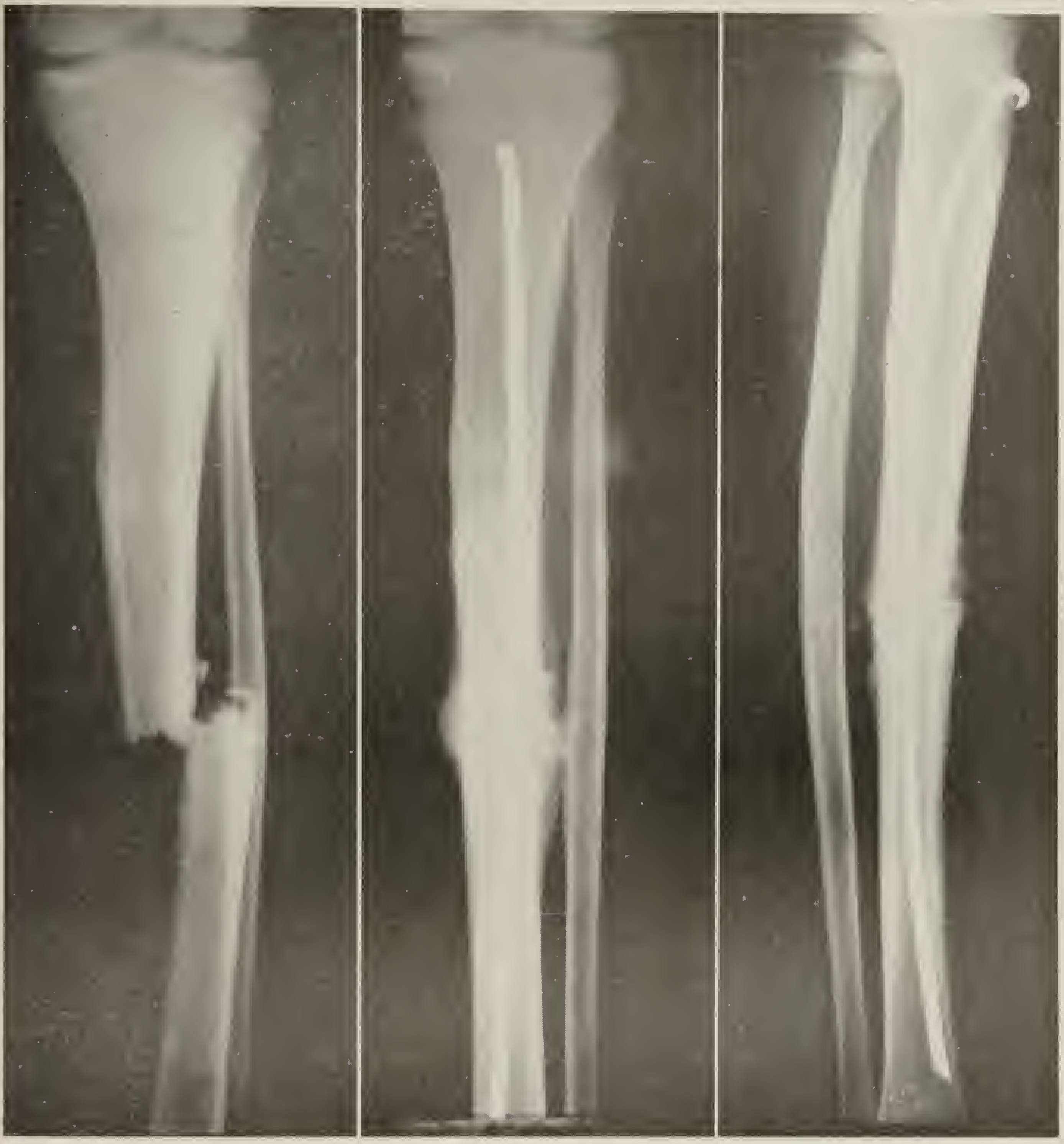
CASE-GRAMS: TIBIA

Helpful Fibula

Male, age 53. Spiral fracture of mid-shaft of tibia. Fibula intact. Closed pinning, using straight 1/4 inch pin, the head portion being stress relieved to prevent migration into the bone. Fixation was thoroughly stable, without tendency to rocking or rotation. No splints applied. Excellent compression of the fracture lines and at five weeks the fracture lines have almost completely disappeared, and full weight bearing permitted.

The rapid healing in this case is exceptional. Note that the tibio-fibula parallelogram was completely restored.

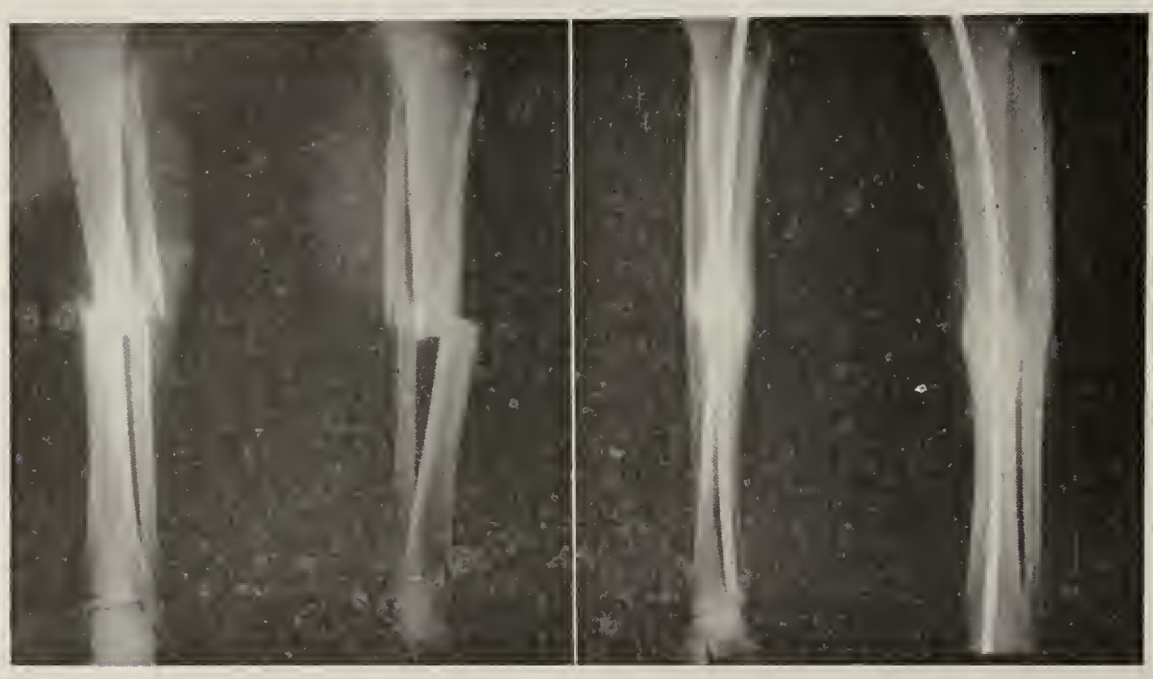
The pin not only prevented motion at the fracture side, but compressed the broad fracture surface to stimulate healing.



Compound Fracture—Immediate Pinning

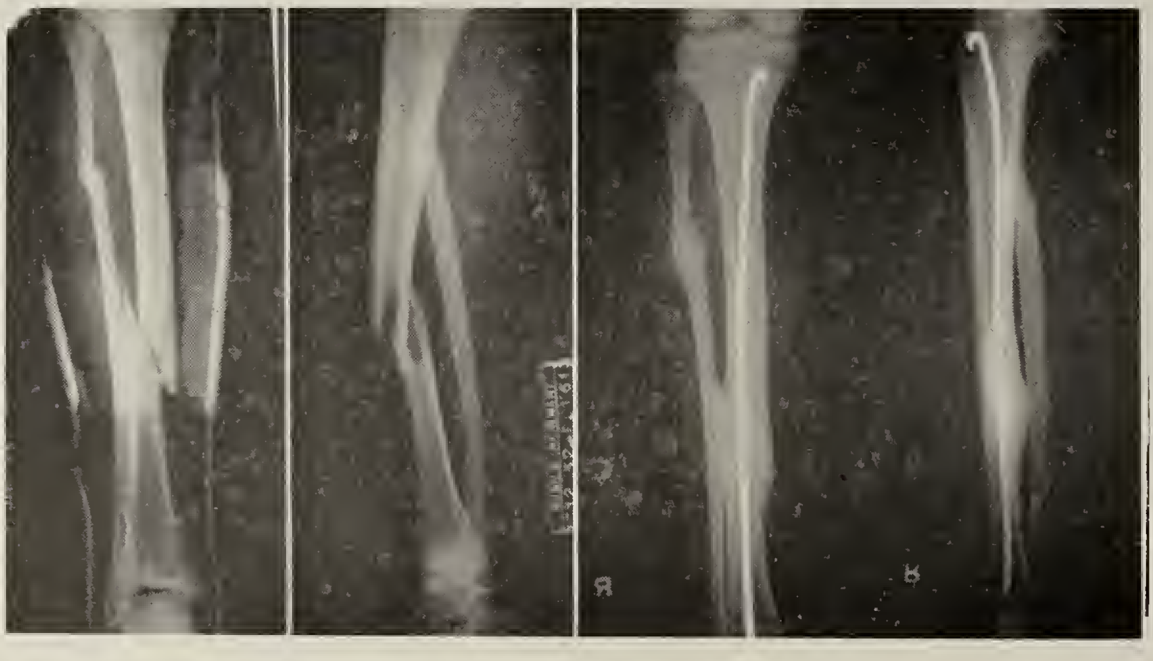
Male, age 19. The fibula was incompletely fractured and could still exert stabilizing force. Debridement, open reduction of fracture with fixation by a curved pin 3/16 inch in diameter. Complete closure of soft tissue by suture. Fixation thoroughly stable with no tendency to angulation or rotation. Stability was due to the presence of the curved pin, the irregularity of the fracture line, the patient's age and the relatively intact fibula. Compression dressing of kerlex gauze and elastic bandage for ten days. No external splinting.

This patient walked into the clinic six weeks after injury bearing full weight and carrying his crutch. At ten weeks the fracture line had almost completely disappeared.



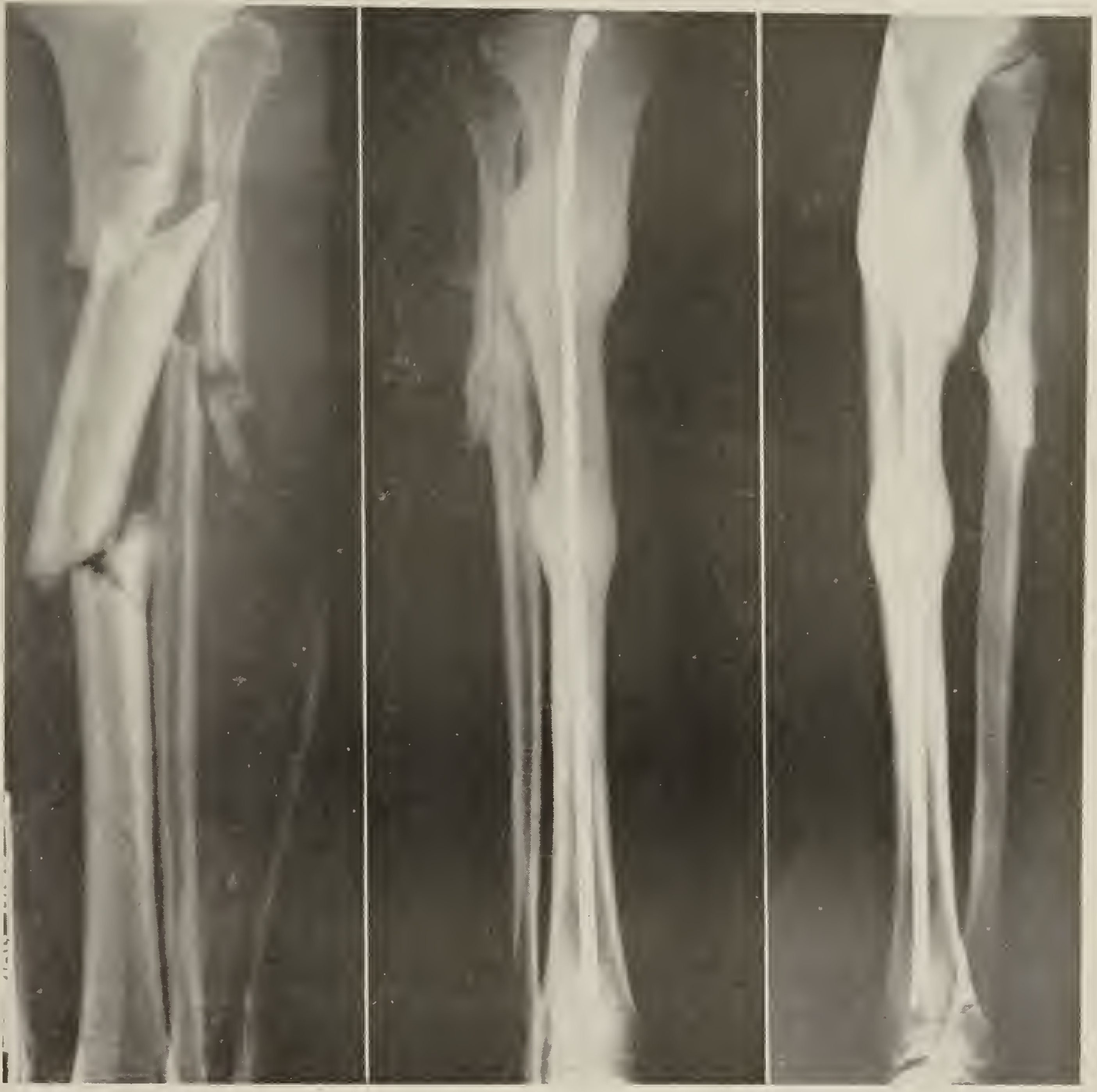
Traumatic Blisters—Closed Pinning

Male, age 47. Immediate closed reduction and a KES dressing applied. Pinning delayed two weeks because of traumatic blisters. Closed pinning using 1/4 inch curved pin. Fixation was thoroughly stable without tendency to angulation or rotation, but KES dressing was applied for security and was replaced with a short-leg walking cast at five weeks. The cast was worn one month. Partial weight-bearing with crutches. Full weight-bearing at four months.



Adolescent—Traumatic Blisters

Female, age 16. Surgery delayed three weeks because of the traumatic blisters. Closed pinning using a 3/16 inch pin. Fixation secure. Very slight tendency to rocking. No tendency to rotation. Plaster splints. In four weeks the leg was clinically stable and fifty per cent weight-bearing begun. At eight weeks the fracture line was very faint, the leg was clinically stable, and full weight-bearing permitted.

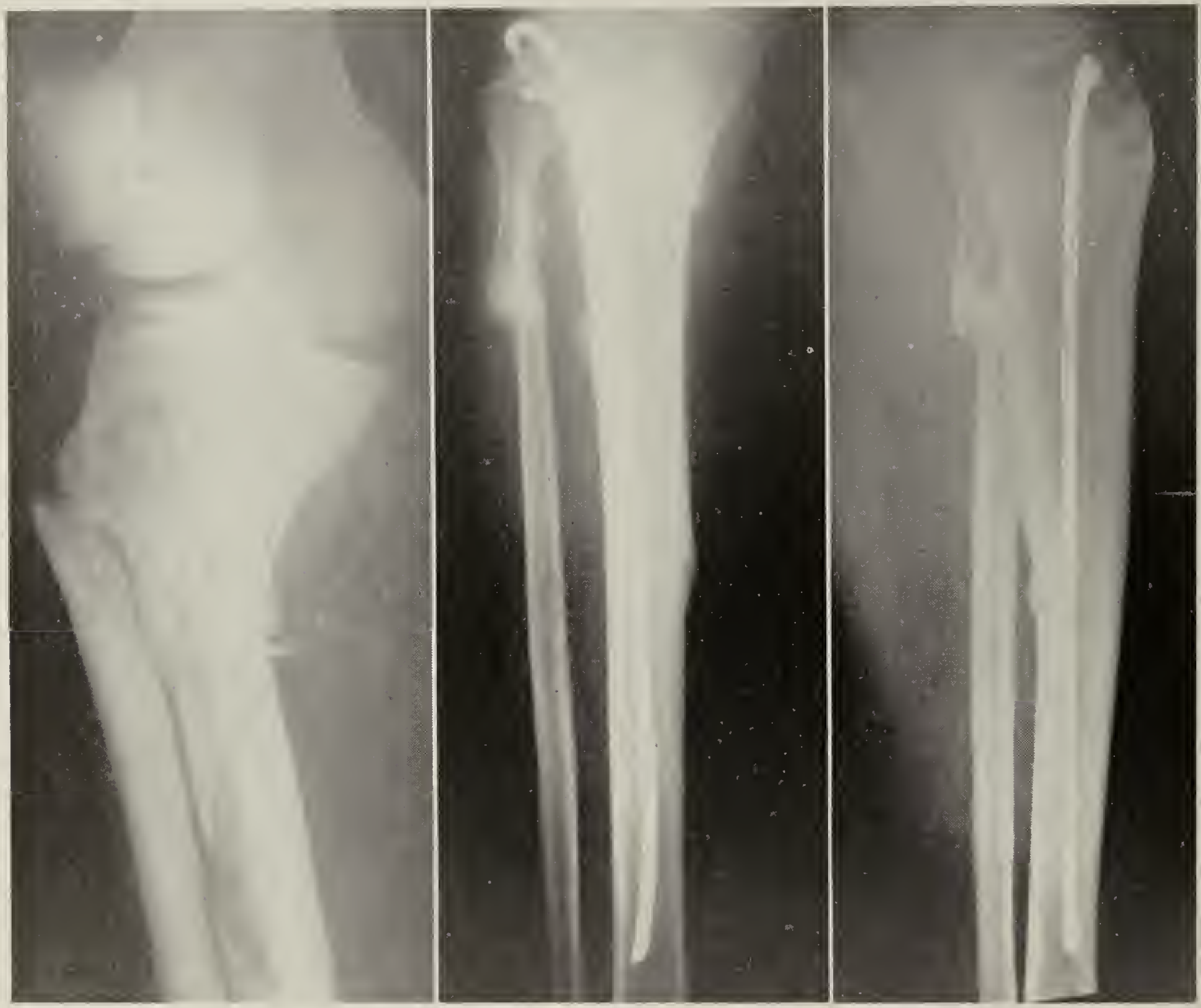


Triple Fracture—Closed Pinning

Male, age 59. The incomplete fracture at the junction of the lower and middle thirds of the tibia is not plainly demonstrated. A straight 3/16 inch pin, with head stress relieved, was driven downward as a closed procedure. Pin guided across fracture line by axial rotation. Long leg plaster cast applied without weight bearing for three months. Cast removed, good union occurring, fifty per cent weight-bearing permitted with one crutch. The patient did not return for seven months at which time the above check-up films were made.

In this case fixation was not stable. Double pins, one driven downward from each condyle, would have given better fixation. This procedure, however, might have required small incisions over the fracture sites.

Some type of external splinting is nearly always required in multiple or comminuted fractures of the shaft.

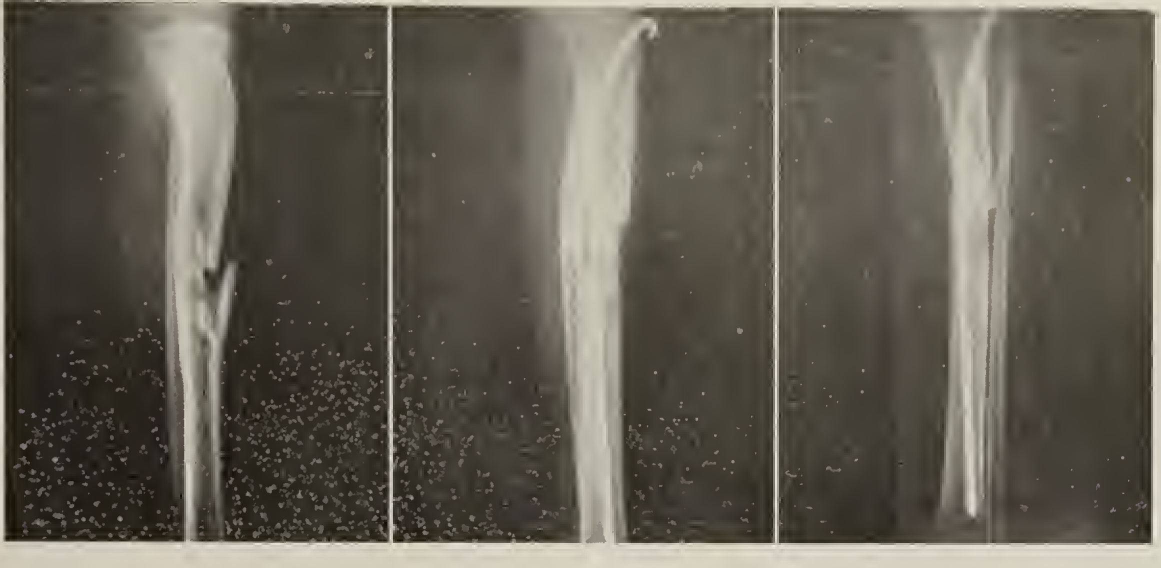


Compression Rotation Fracture

Male, approximate age 55. This patient, an architect, fell through the ceiling of a building striking the floor twelve feet below. The upper half of the tibia was violently comminuted with enormous swelling of the soft tissues immediately. He suffered additional severe compression fractures of two lumbar vertebrae.

Immediate closed pinning was done because of the enormous swelling. A curved pin was introduced with considerable difficulty with the knee flexed thirty-five degrees. Strong traction on the foot. Attempt to introduce a second pin from the medial condyle to oppose the first pin was unsuccessful because on each attempt the pin would pass through a fracture line. Fixation was thoroughly unstable except when the foot was held in marked internal rotation at which time it became stable. KES dressing worn for eight weeks. Replaced by removable long-leg plaster splints and later by long-leg knee cage brace without knee joint.

This patient suffered moderately severe injury to the collateral ligaments. Healing of the tibia was slow. At six months the leg was completely stable, the ligaments of the knee were stable and the patient was permitted full weight-bearing.

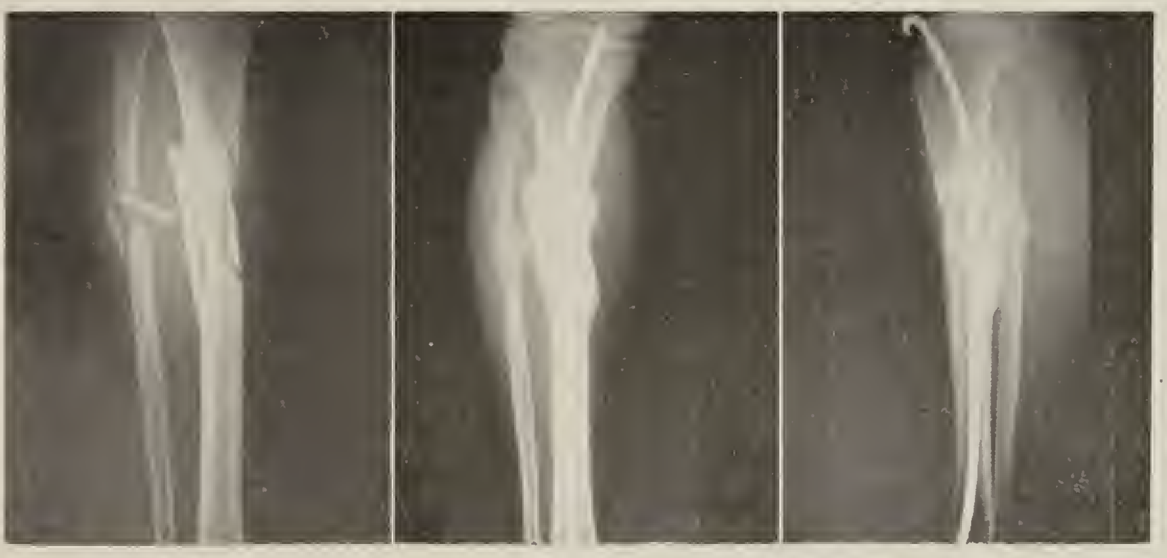


Compound Fracture—Child

Male, age 12. Large puncture wound of the leg with comminution of the tibia from a stove explosion.

This case was treated by debridement with open reduction, and an attempt was made to introduce two pins. The second pin persistently produced angulation and was removed. Application of the pins was difficult because of the necessity of inserting the pins below the upper tibial epiphysis. Fixation was not stable. KES dressing was necessary.

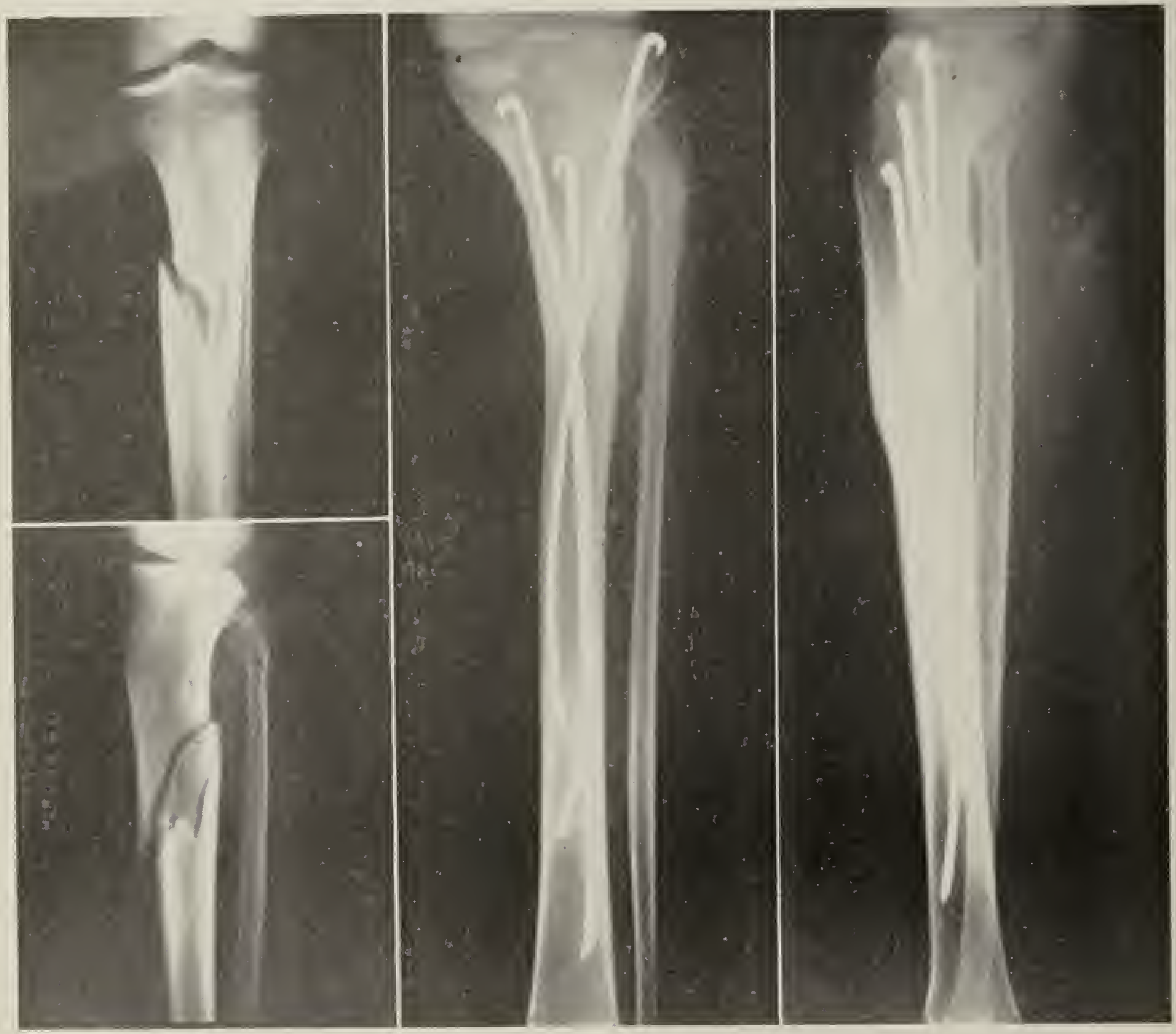
This pin showed a tendency to rotate to produce angulation which was prevented by careful molding of the plaster splints. The splints were worn for four months when full weight bearing was permitted.



Double Fracture—Comminuted

Female, age 62. Semi-open reduction using a 3/16 inch pin, curved. Fixation was unstable and KES dressing applied from mid thigh to toe. Splints were removed at three months when partial weight-bearing was begun. Full weight-bearing permitted at six months.

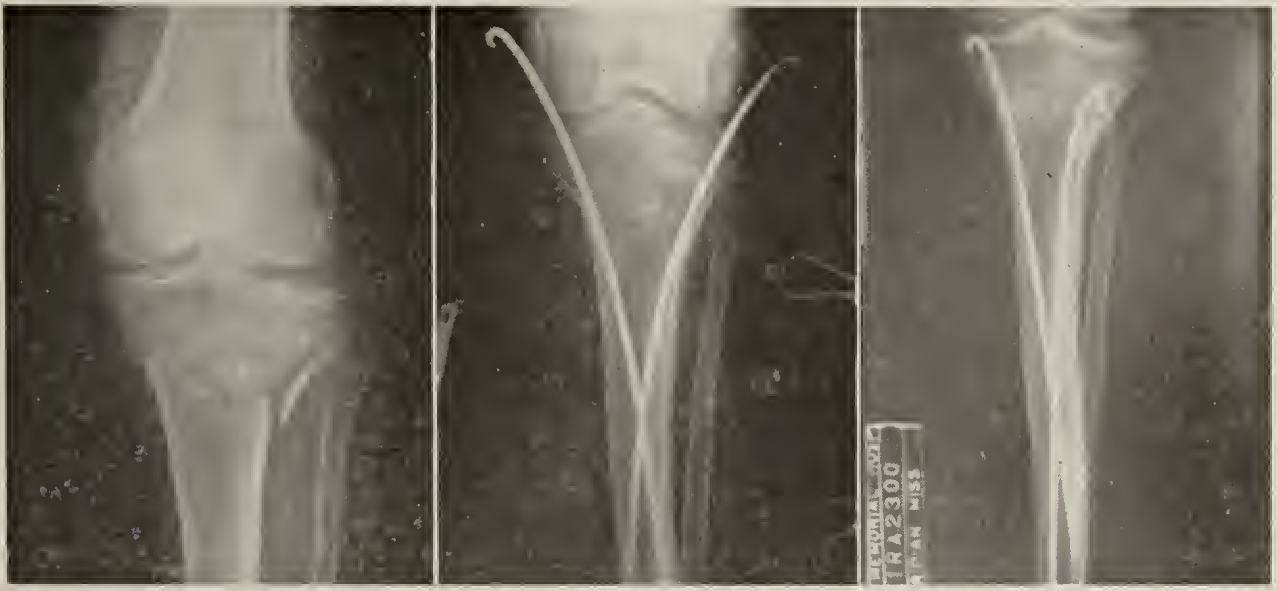
Note: The pin was introduced at a point too near the knee joint. It caused slight discomfort on motion. It would have been better to have inserted the pin at a point about one inch lower. It is possible that double pins, one from each condyle, would have served this purpose better. This patient has a small medullary canal, and it is possible that two pins 3/16 inch in diameter might have split the cortex.



Upper Third—Comminuted

Female, age 47. In the lateral view note the direction of the obliquity. A single pin introduced in the traditional manner would displace the shaft backward because the proximal fragment is too short to permit three-point pressure. The third point of pressure would actually have been exerted posteriorly against the shaft. Treated by closed triple pin fixation using 1/8 inch pins. Fixation was relatively stable. KES dressing applied from mid-thigh to toes. Long-leg cast applied at ten days and worn for two months. At three months the patient had full motion, but there was still slight rocking at the fracture site. Healing was slow. Five months after surgery, union was still doubtful. The patient discharged herself and was not seen for four years at which time the above follow-up films were made.

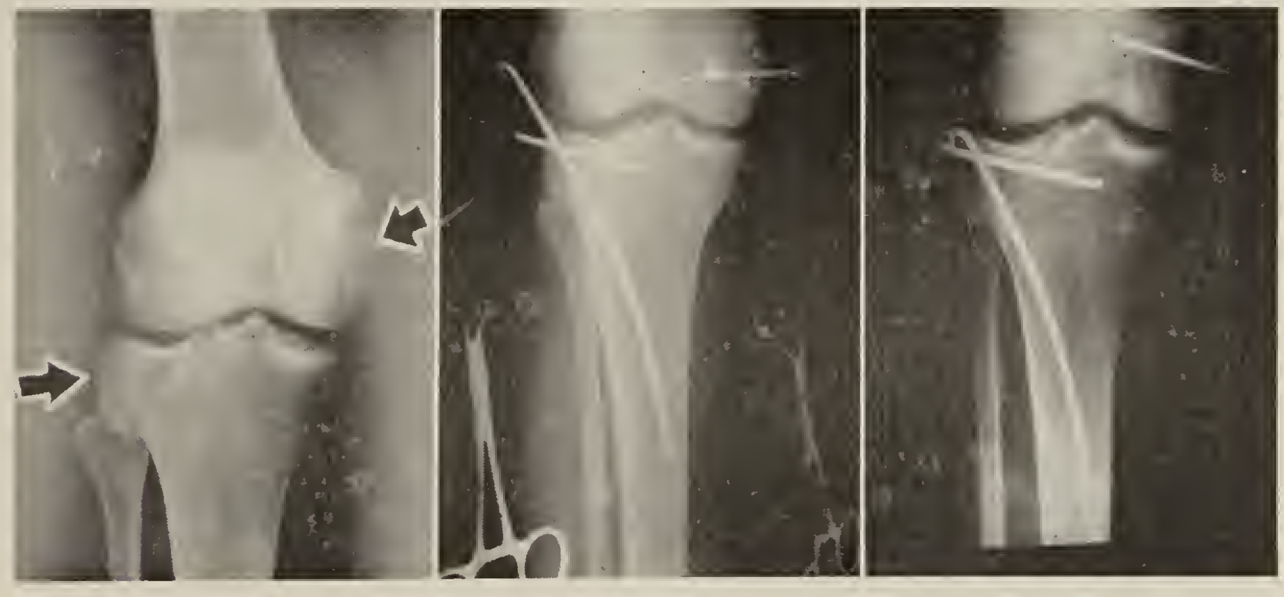
In the light of present knowledge the patient would probably have obtained a much more stable fixation had two 3/16 inch pins been used instead of three 1/8 inch pins. Double pins, one introduced from the medial and lateral surfaces respectively of the tibia, should have given more stable fixation than was actually secured in this case.



Tibial Condyles—Comminuted

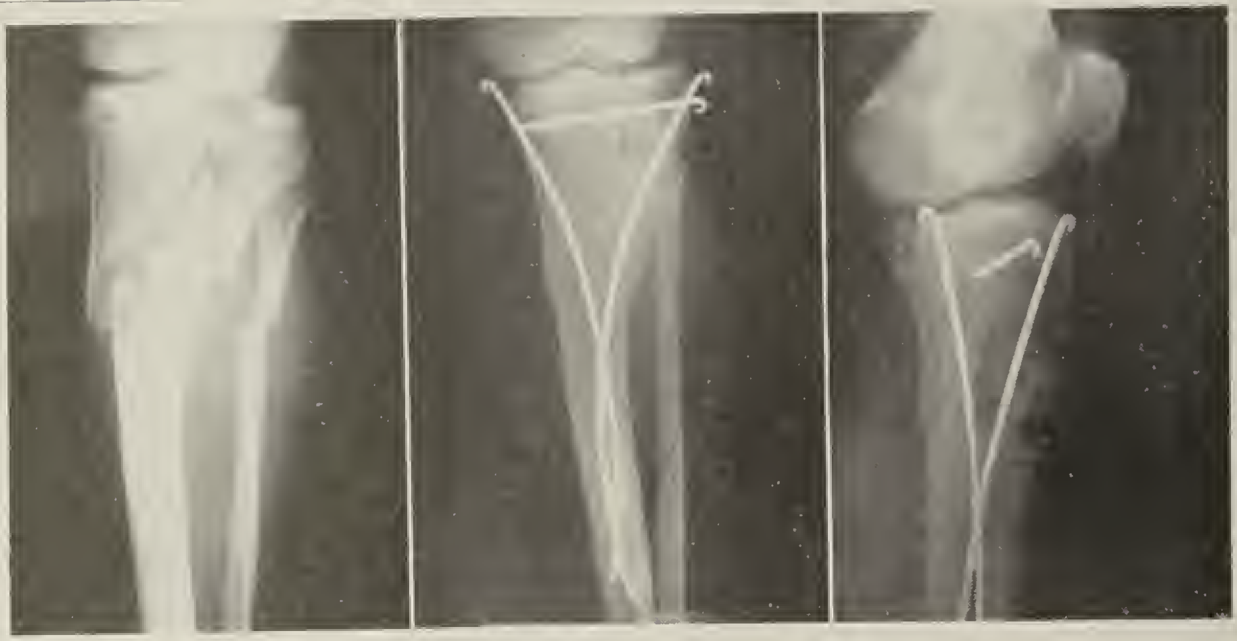
Female, age 74. Fracture reduced by traction with the knee flexed forty-five degrees. Double pins introduced as a closed procedure, one through each condyle. The two pins were driven downward simultaneously. Fixation was relatively stable. Because this patient had very thin osteoporotic bones, migration of the pins into the bone was feared.

Plaster splints, applied with elastic bandages were worn for eight weeks. The splints were removed periodically for exercise of the knee so that motion was never lost. Knee-cage brace applied at eight weeks. Solid healing at four months.



Depressed Condyle

Male, age 36. Injury produced by the knee being forced violently into valgus. The internal epicondyle of the femur was avulsed by the pull of the internal collateral ligament. Note the oblique depressed fracture of the external condyle of the tibia. Closed pinning. Reduction accomplished by strong traction with the knee flexed forty-five degrees. The condyle compressed into position using a C clamp. The "vase of flowers" pressure of the longitudinal pin gave excellent compression. Fixation was stable, plaster splints were worn for six weeks. Healing was complete in four months with a stable knee.

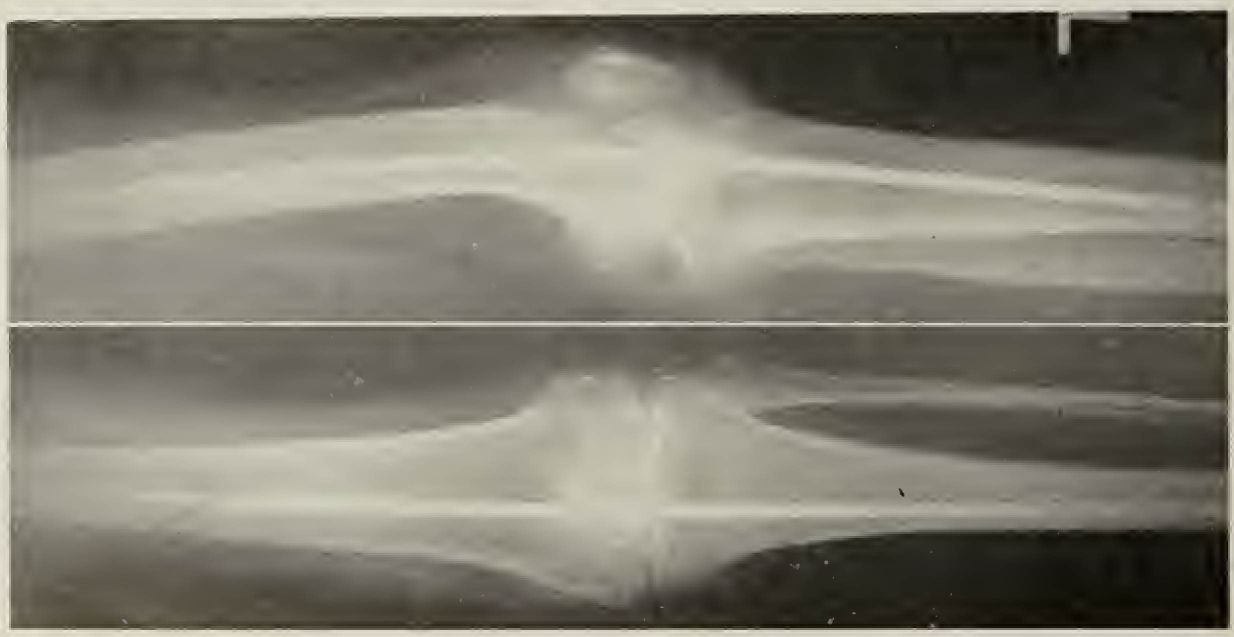


Condyles—Bag of Bones

Male, age 47. Comminuted compression fracture. Patient fell forty feet from a radio tower.

Closed reduction accomplished by strong traction with knee flexed thirty-five degrees. Condyles compressed with a C clamp. Closed pinning. Small incision made to apply circular wire.

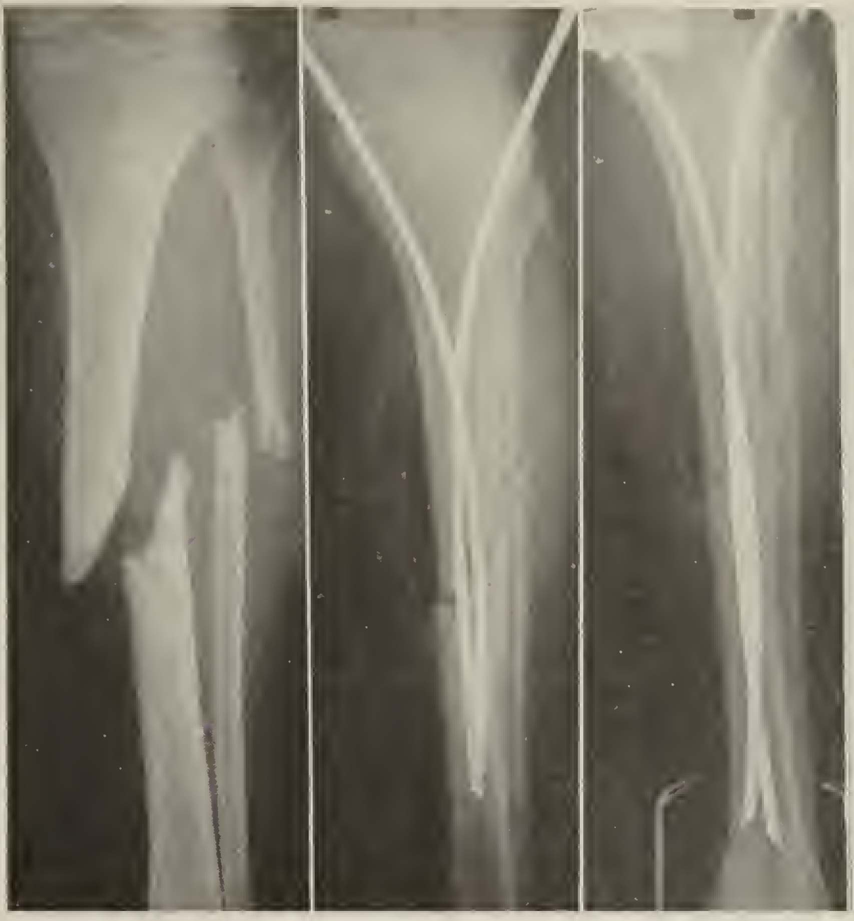
Long-leg cast worn five months. Full weight-bearing at seven months. Some lateral mobility of the knee persisted.

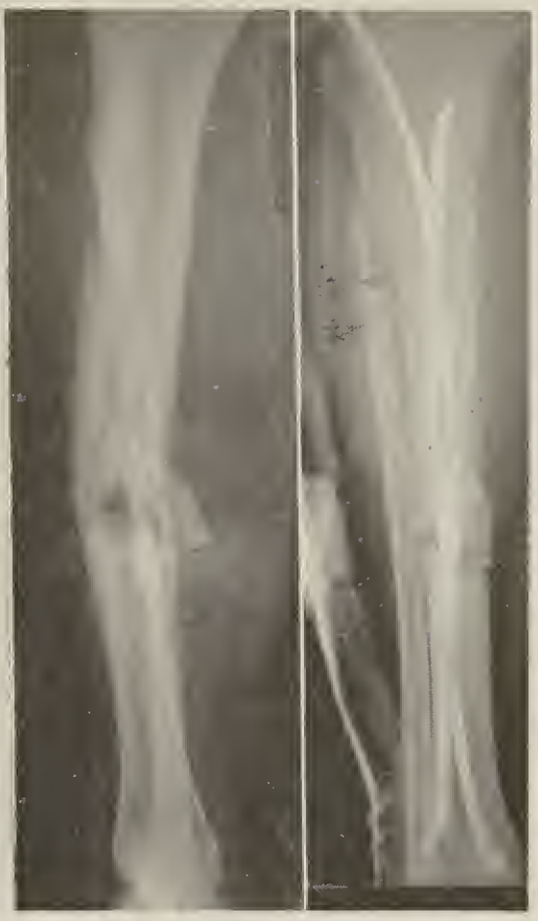


Arthrodesis Knee

Female, age 47. Old vertical fracture of the posterior portion of the external condyle of the femur. Previous open reduction unsuccessful. The fragment could not be maintained in position. Flexion deformity resulted with painful knee and with markedly limited motion.

Arthrodesis done with medullary pin for fixation. The pin, 3/16 inch diameter, 26 inches in length, introduced from the great trochanter of the femur and driven across the knee joint a point near the ankle for fixation.





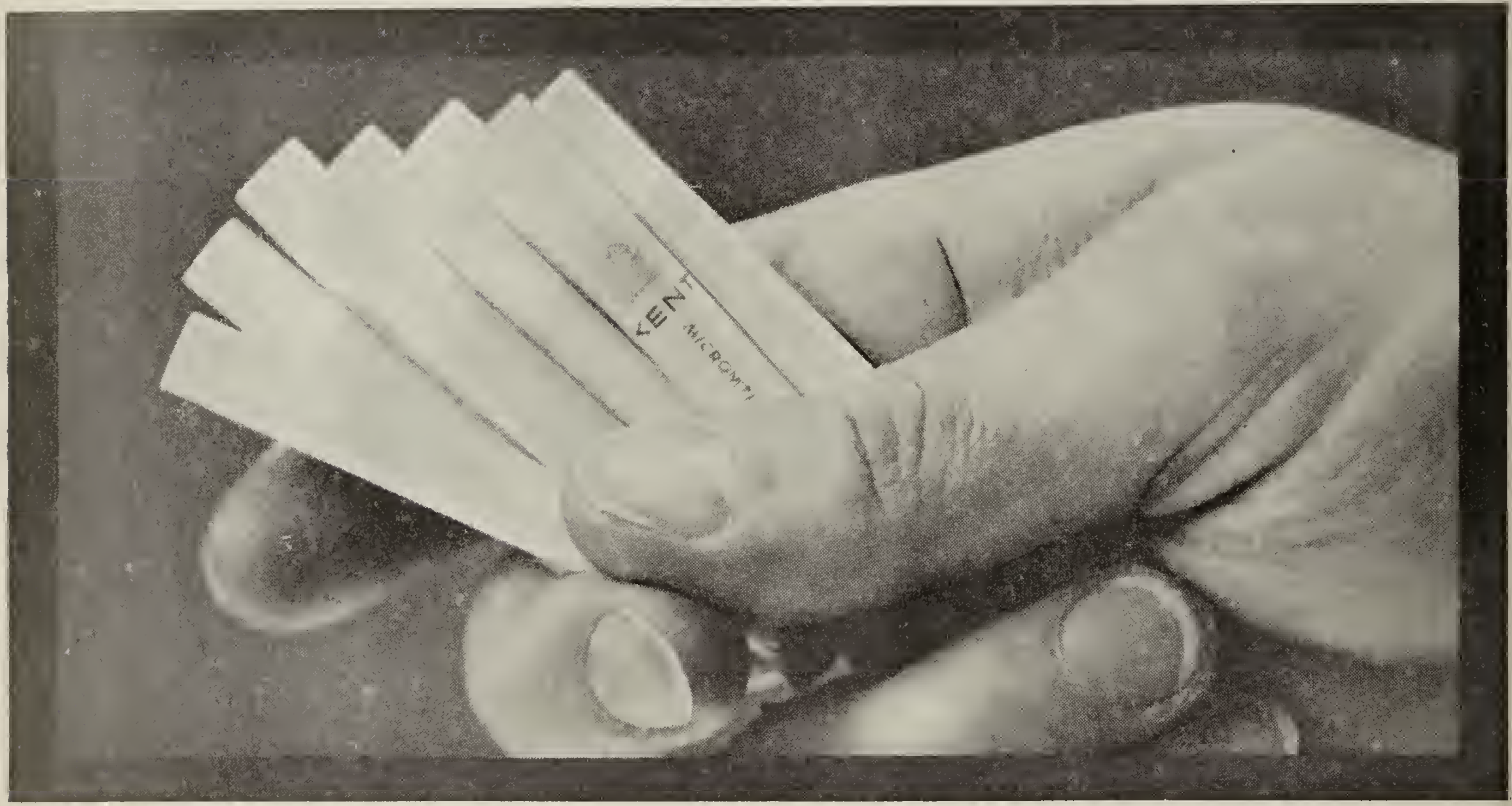
LEFT: *Compound comminuted fracture of tibial shaft. Fixed by two pins (3/16 inch) driven down from each condyle.*

RIGHT: *Similar case. One pin driven down from external condyle. This pin was straight when driven. Unsuccessful attempt made to pass similar pin from medial condyle because of many fracture lines in upper fragment. Second curved pin driven upward from point above and medial to internal malleolus gave good fixation.*

Double Pins For Shaft

In the comminuted shaft double pins properly applied can give excellent reconstruction and fixation. The above cases were open fractures with severe soft tissue damage. In such cases fixation is relatively stable, but KES dressing is indicated to immobilize the soft tissues, for compression, and to increase the stability of fixation.

Why is it, Doctor, that one filter cigarette gives so much more protection than any other?



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BOOK SECTION

INSTALLMENT 13

Atlas of Rush Pin Technics

LESLIE V. RUSH, M.D.
Department of Surgery
Rush Memorial Hospital
Meridian, Miss.

This is the thirteenth of a series of monthly installments to be published in *The Mississippi Doctor* during the coming year. The monograph on fracture surgery will be available in bound form in 1955.

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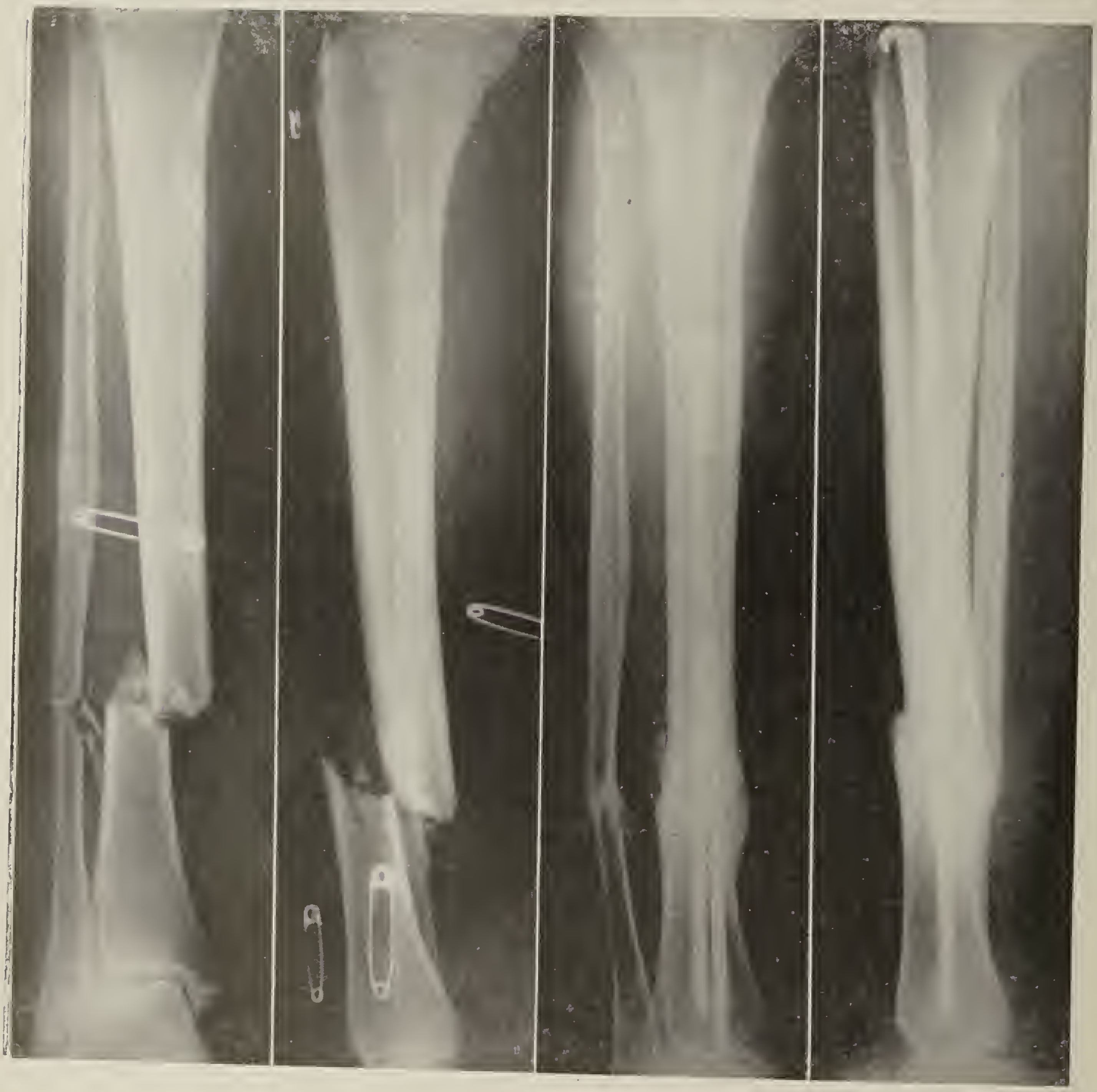


Lower Third: Double Pins

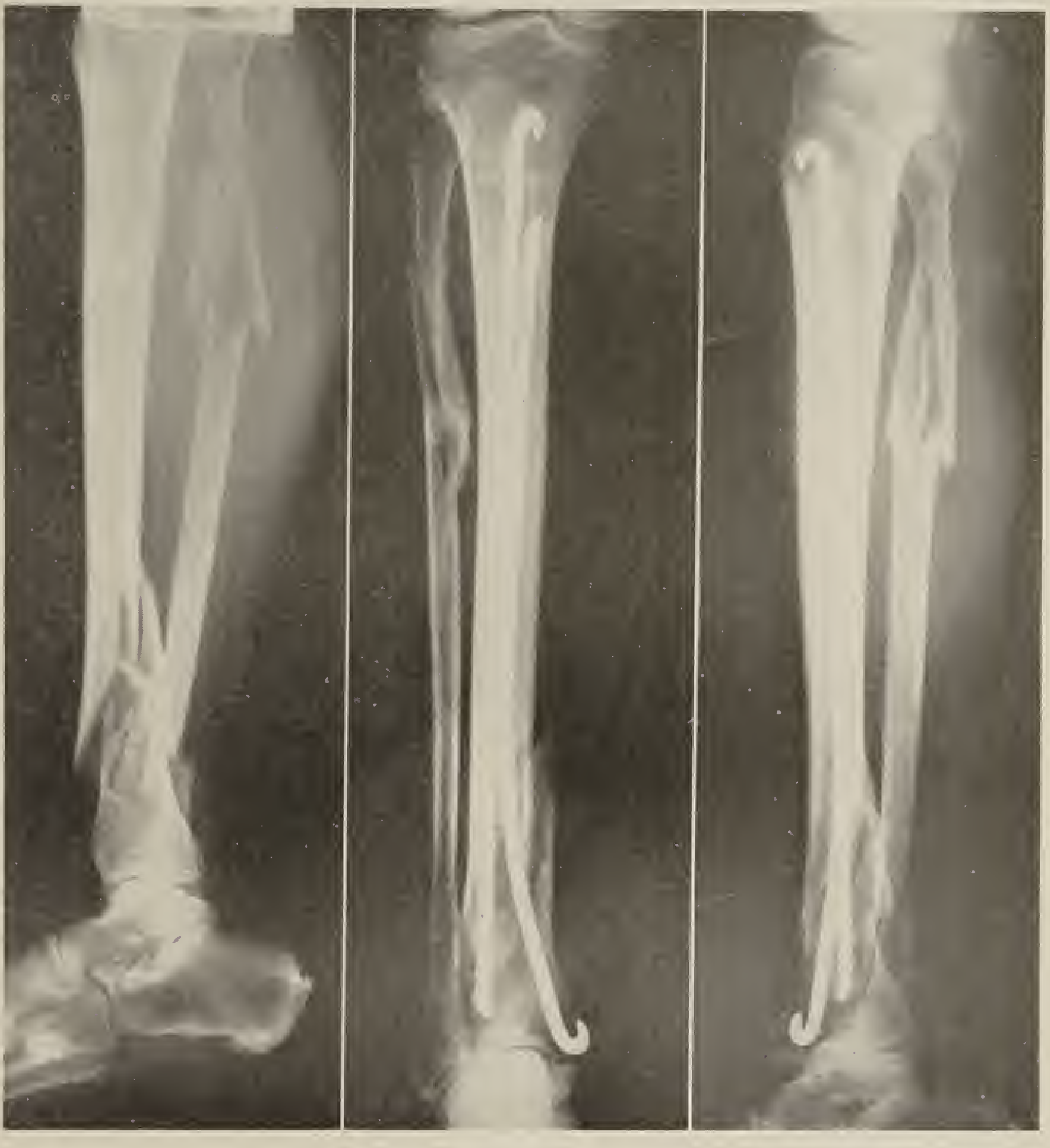
Male, age 65. Compound fracture of the tibia and fibula at the level of the upper portion of the lower third. The fracture was mildly comminuted. Immediate transfixion with double pins at the time of the débridement and closure of the soft tissues. Healing occurred by primary intention.

These pins were both 3/16 inch in diameter, and both pins were straight at the time they were driven.

This is not the recommended procedure for double pinning of fractures of this type. Note that the pointed ends of both pins are closely parallel. The pins would have been better introduced from the sides of the condyles. This would have forced both pins into greater curves and would have given better fixation with greater pressure points. Giving each pin a slight curve can be advantageous under these circumstances.

§

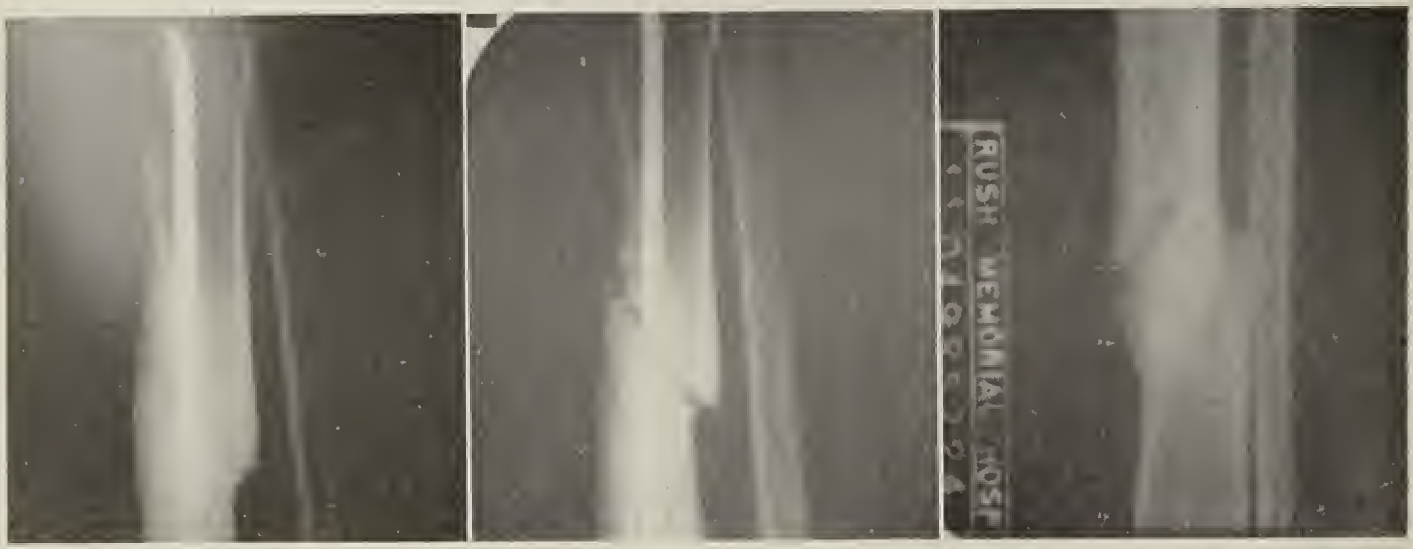
The follow-up films shown above were taken seven months after the injury.



Comminuted Fracture: Up and Down Pins

Female, age 79. This patient was in wretched physical condition and had been bedridden for months prior to this fracture. She was extremely listless and made no effort to move herself in bed after the injury. The pins shown here are both 3/16 inch in diameter. Relatively stable fixation was secured. KES dressing applied from the lower third of the thigh to the base of the toes.

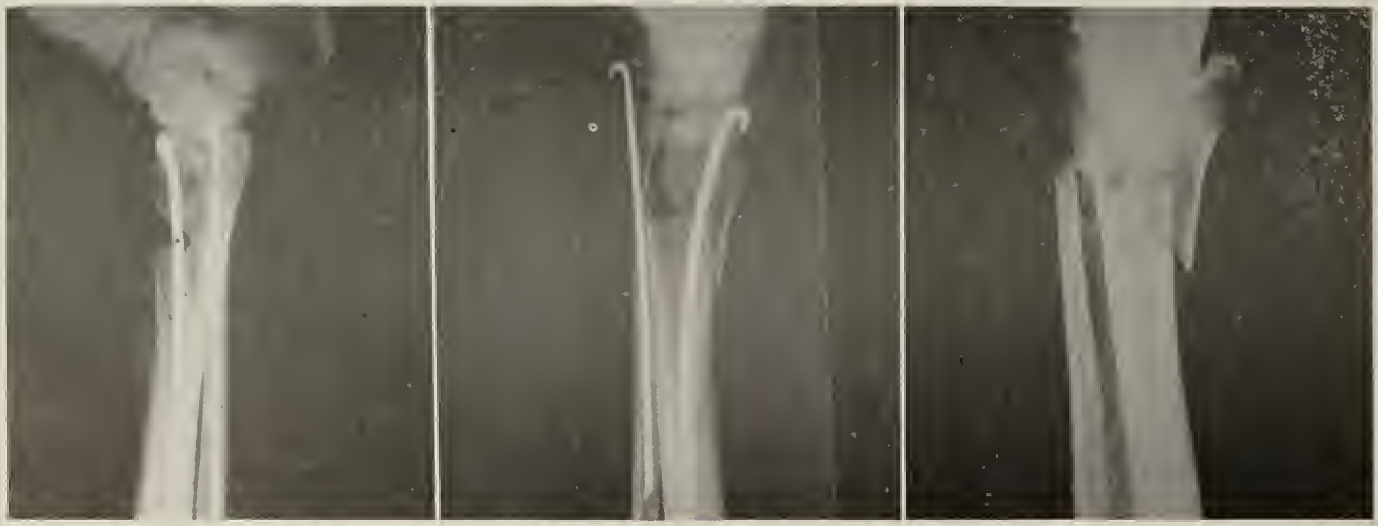
The application of a single pin which was driven down the tibia did not give secure fixation. The second, curved pin driven upward from the lower extremity of the tibia markedly increased the stability. Both pins were applied as a closed procedure.



Non Union: Chip Bone Graft

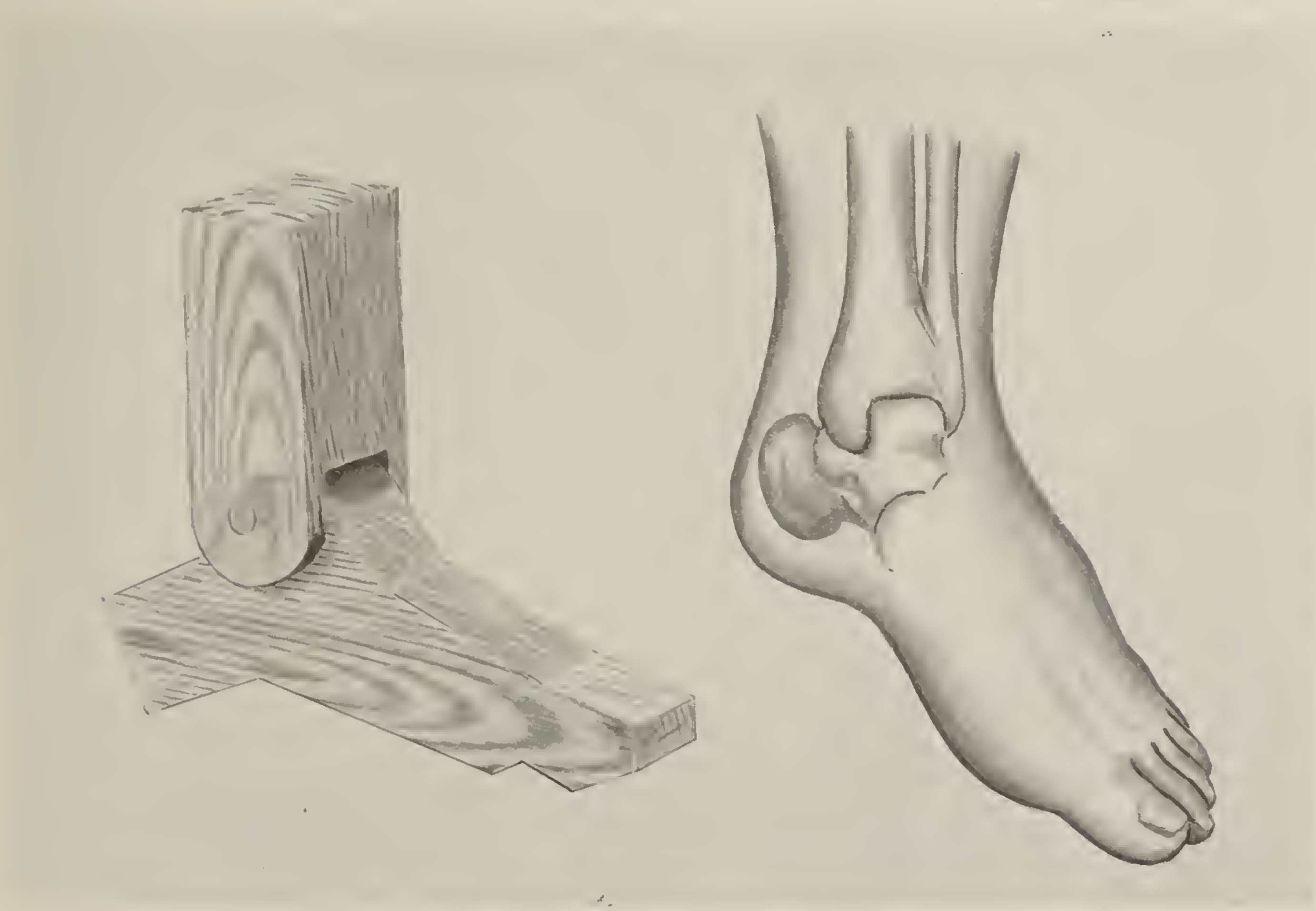
Male, age 38. Spiral fracture of the tibia, ununited at one year. Three-sixteenths inch pin driven across the fracture line as a closed procedure. The fibrous union at the fracture site was not disturbed. The anterior portion of the tibia was saucerized and packed with chip bone grafts. Splints were not applied, and the patient was permitted full function with the exception of weight bearing. Firm union had occurred six months after bone grafting.

Although motion did not disturb healing in this case, it is no doubt better to apply lateral plaster splints with elastic bandages during the healing period to prevent tendency to rocking and rotation which can delay healing. In occasional cases, however, fixation is so stable that external splinting is superfluous.



Lower Third: Compound Fracture

Male, age 51. Injury produced by a chain-type tree saw which produced considerable loss of bone substance, severance of many tendons, and of the anterior tibial artery. This patient exhibited generalized arteriosclerosis and was just recovering from a coronary occlusion. The wound healed by primary intention, but four weeks after the injury the patient was threatened with arterial gangrene of the foot. Lumbar sympathectomy was done and the foot survived. This patient is still under treatment, good union of the fracture is occurring, and the tibia is clinically stable.



The ankle is a mortise joint.

22

THE ANKLE

The deformity here is the result of the force of violence. There are multitudinous variations of fractures of this region which defy accurate classification and each must be treated upon its own merits.

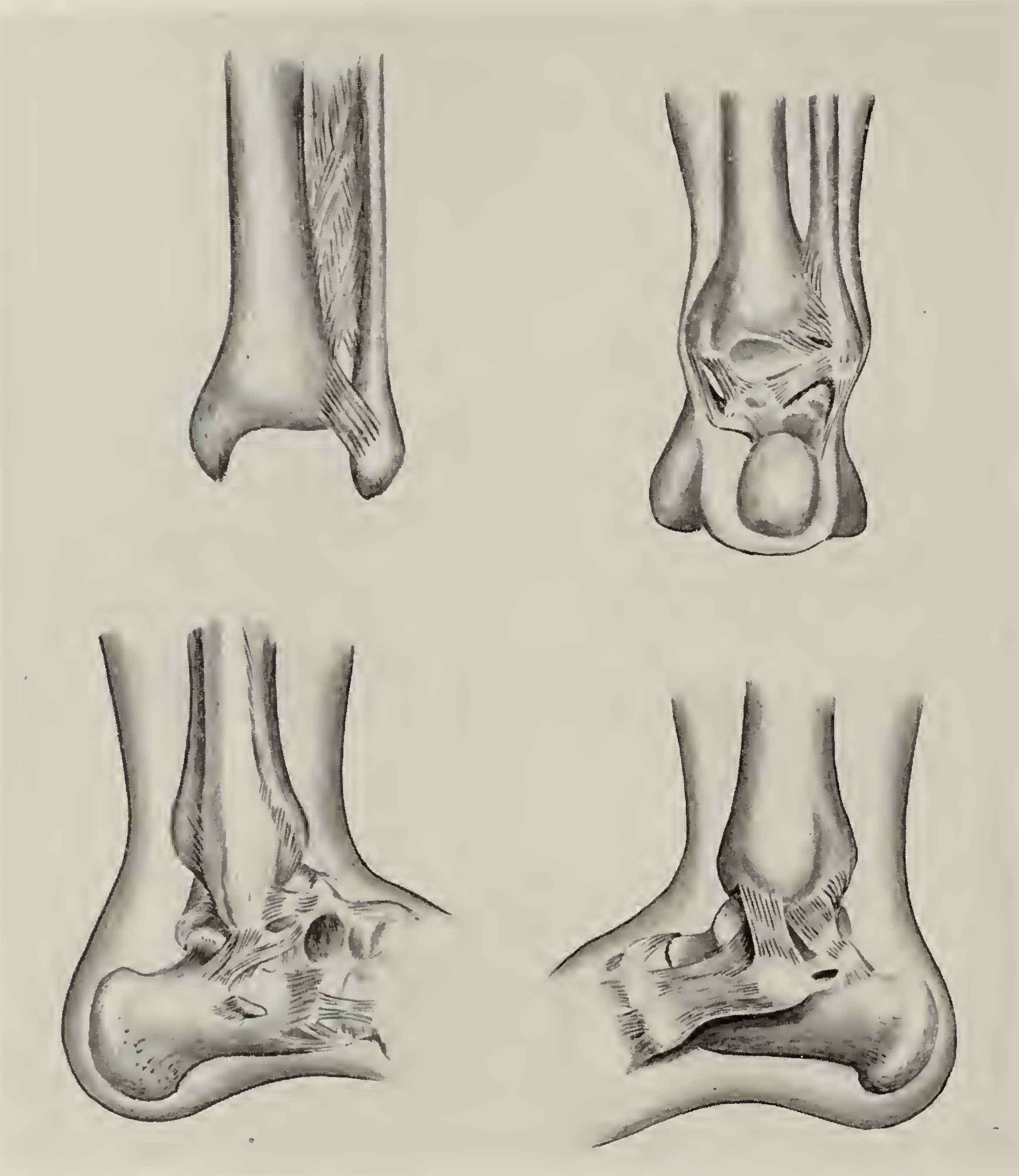
The ankle is a mortise joint. The astragalus is the tenon of the mortise. The curved superior surface of the astragalus fits into the mortise in such fashion that motion allowed by this joint is primarily that of flexion and extension. The other motions are provided largely by the joints of the foot.

At the ankle joint the relationship of the foot to the leg is very much like that of an inverted see-saw. The astragalus rocks upon the fulcrum. It is apparent that when violence is exerted upon it, the foot is capable of acting as a lever to transmit great force to the mortise joint.

Injury here is actually produced by three-point pressure. One force is the active or passive effect of the weight of the body. The other two forces are variable. Conversely, to reduce and maintain the position of fractures of this region requires three-point pressure, whether applied externally or internally.

Simple fractures require plaster immobilization only. Pinning is not indicated unless open reduction is indicated. However, avoidable deformity must not be permitted and the remedy must be applied before healing takes place.

The most conservative treatment of the fractured ankle is that which best reconstructs the mortise joint. An unnecessary open reduction is a radical procedure, but to permit deformity to occur for no better reason than to avoid an incision is very radical surgery indeed.

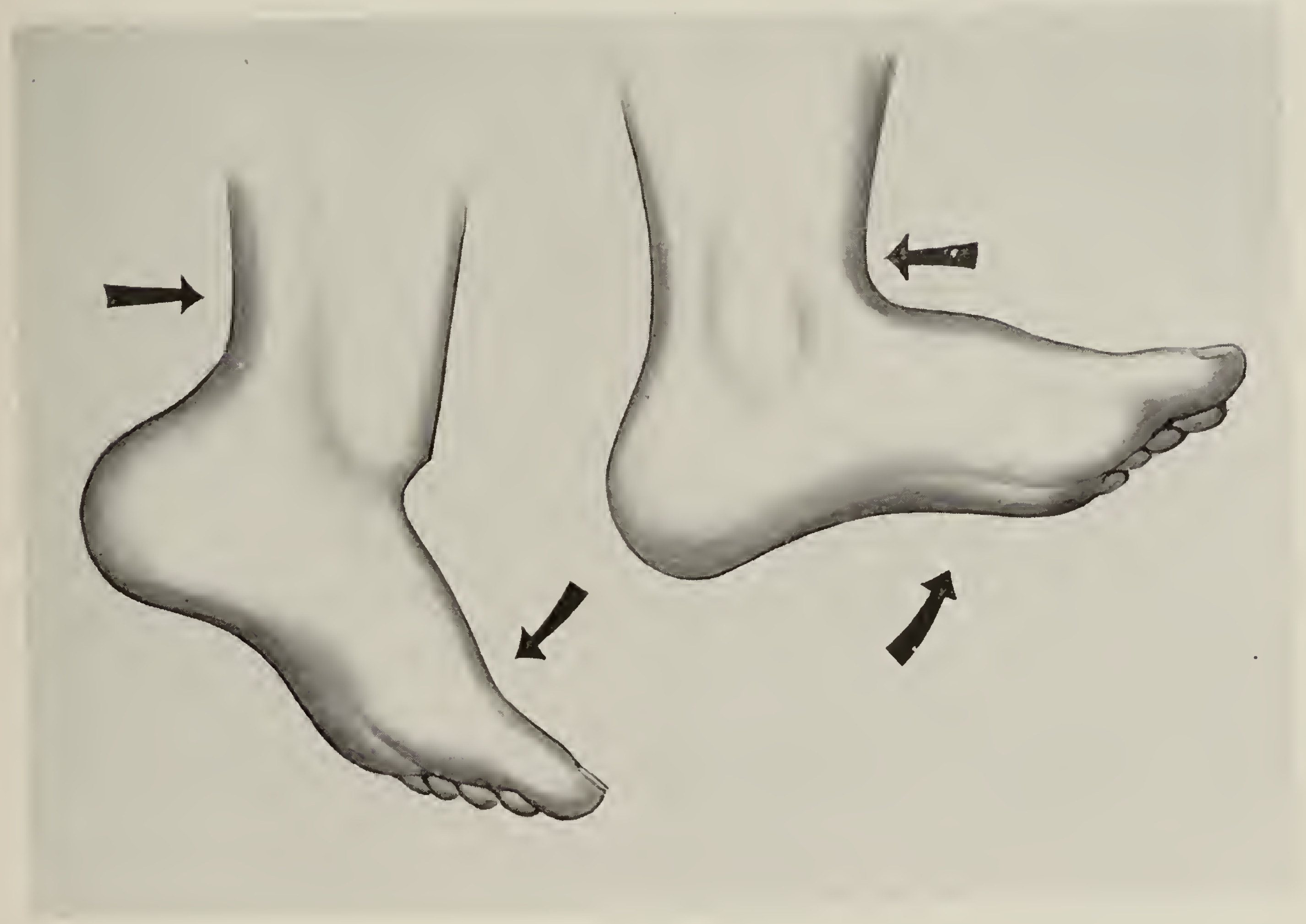


Ligaments Make the Ankle

In most regions of the body it has been the muscle pull with which we had to contend. Here it is the ligaments which do the job. Note how the mortise joint is constructed. The shaft of the fibula is firmly fixed to that of the tibia by the interosseous membrane. The external malleolus provides the lateral wall of the mortise and is snugly attached to the tibia by the tibio-fibulal ligaments.

Except for the very strong ligamentous envelope extending from the leg to the foot, this mortise joint would be insecure.

It must be borne in mind that every ankle injury is a potential dislocation, the variation being a question of degree. Violence to the ankle tends to wrench the astragalus from its mortise and when bone fragmentation occurs, these fragments usually remain attached by these ligaments to the foot and displace with the foot. Proper reconstruction of the ankle region demands complete reconstruction of the dislocation with adequate fixation of the bone fragments.



Reverse the Injury

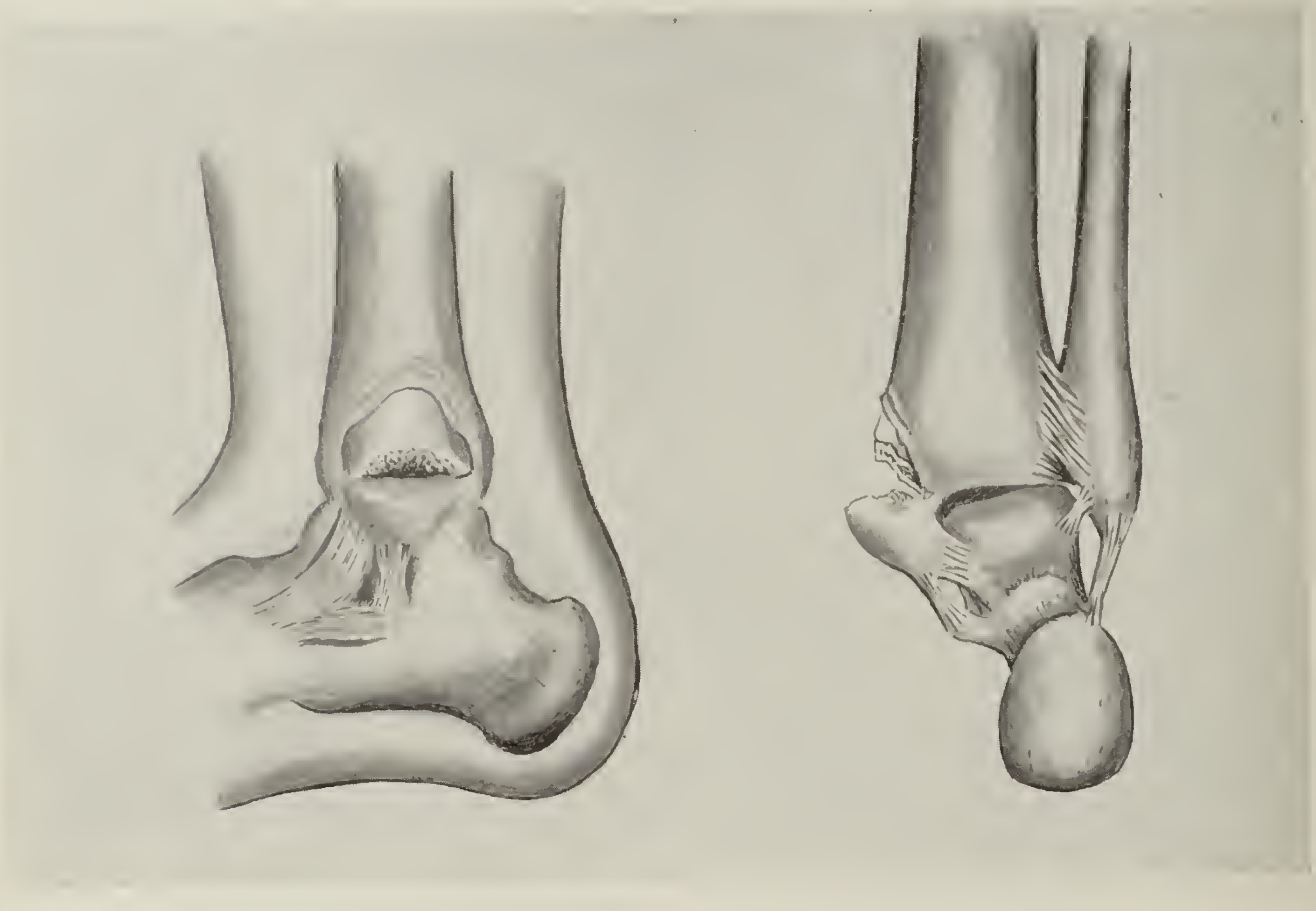
The best way to treat the fractured ankle is by common sense. Each injury occurs in its own peculiar fashion and requires individual consideration as to its treatment. Fractures of the ankle occur by:

1) angulation, 2) rotation, 3) impaction, 4) any combination of the above.

There are an infinite variety of positions in which the foot might be held in relationship to that of the leg at the time the force of violence is exerted. The general tendency of such injury is toward the tearing of the astragalus from its moorings. The direction of the fracture lines and the displacement of the bone fragments will be influenced directly by this force of violence, and the general tendency is towards dislocation of the ankle with displacement of the fragments with the foot.

From a study of the deformity and the roentgenograms it is not too difficult for the surgeon to visualize the direction of forces which produced the deformity.

The surgeon, then, exerts traction to disengage the fragments and reverses the forces of the injury to accomplish reduction. If the injury was caused by angulation, the reconstruction is accomplished by reversing the angulating force. If it was caused by rotation, reduction must be accomplished by reversing the rotating force.

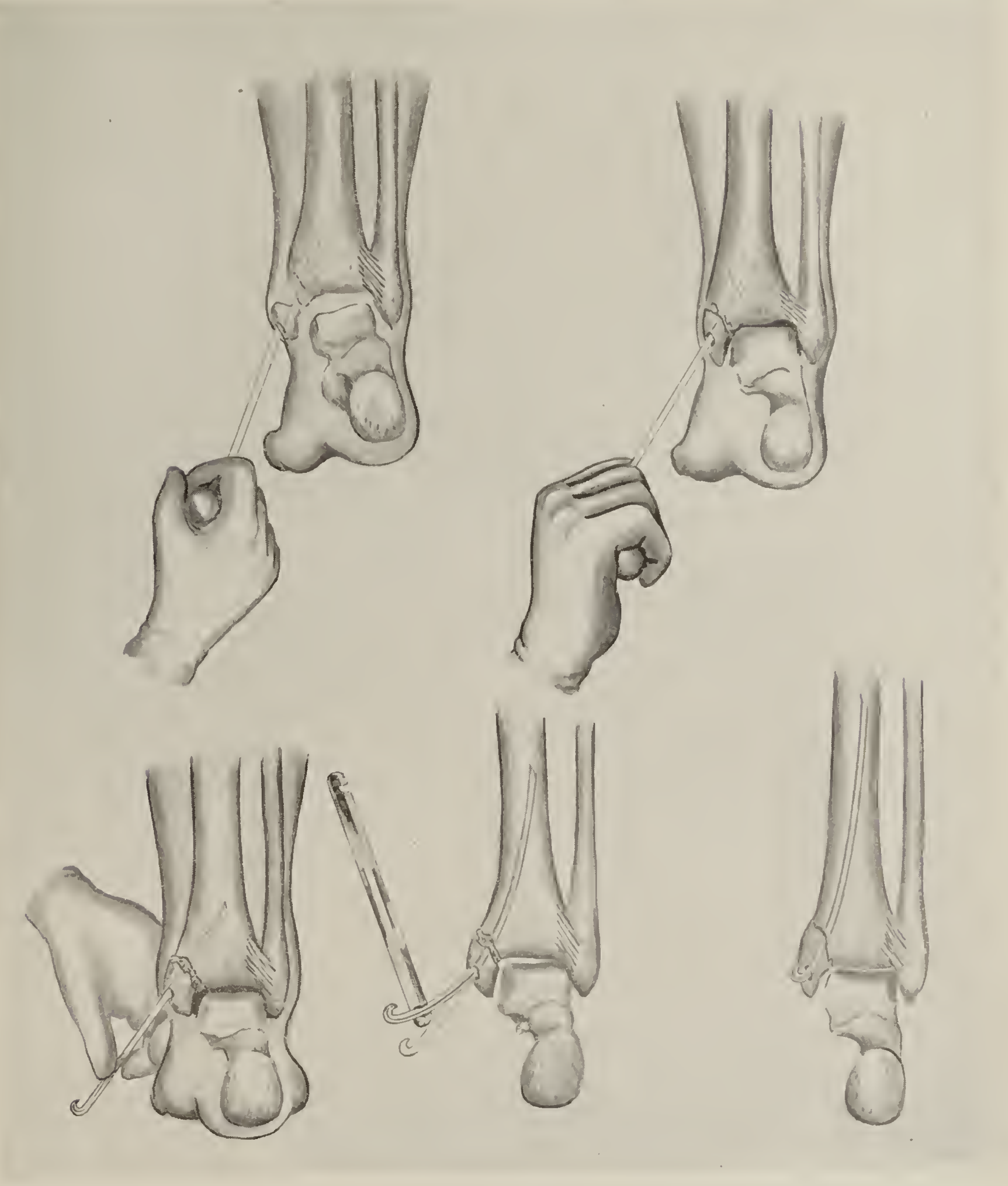


Internal Malleolus

This is primarily an angulation fracture. The deltoid ligament usually proves stronger than the internal malleolus of the tibia which fractures. As the angulating force separates the malleolus from the shaft, the ligaments with the surrounding aponeurosis and periosteum often avulse from the shaft of the tibia in such fashion that this aponeurotic layer invaginates into the fracture line. This interposition of soft tissue can both preclude accurate reconstruction and contribute to non-union. It is essential that the internal malleolus be completely reconstructed and transfixed in order that an accurately fitting mortise joint result.

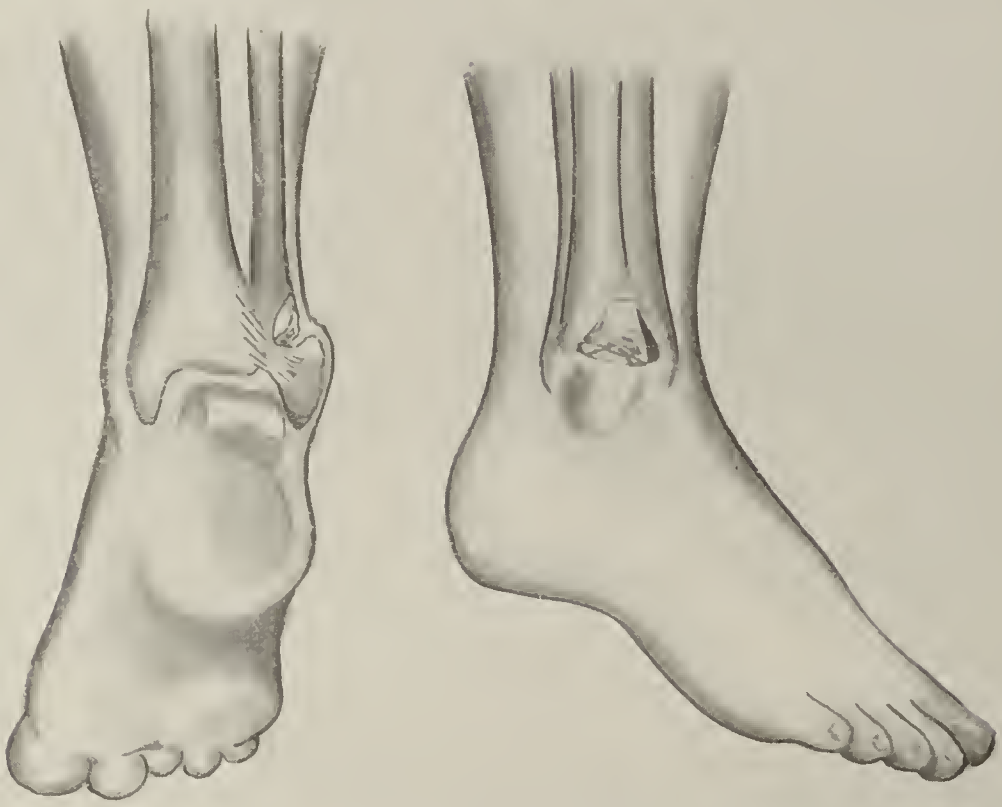
Technic: A small curved incision is made over the fracture. The soft tissue is removed from the fracture line. With the awl reamer (1/8 inch) an oblique opening is made beginning at the tip of the fragment of the internal malleolus, passing obliquely into the fracture line. Using the awl reamer as a manipulating instrument, the fragment is repositioned and the awl reamer is drilled into the main fragment of the tibia for a distance of about one inch. A pin, 1/8 or 3/16 inch in diameter and about three or four inches in length, is chosen. This pin then replaces the awl reamer in the opening which has just been drilled. The fragment is replaced, and the pin driven obliquely into the tibia.

As the sled runner strikes the far cortex, it is deflected upward according to the "vase of flowers" principle in such fashion that the shaft of the pin develops very firm fixation in the shaft of the bone. But there is a tendency for the fragment of the malleolus to angulate medially in such fashion as to produce distraction. When the head of the pin lacks about one to one and one-half inches of being driven completely home, it should be given a slight curve with the bending iron. The pin is then completely driven; the fracture hiatus closes to give contact compression and firm fixation.



When the bone fragment is substantial, fixation might be sufficiently secure that external immobilization would not be necessary. But oft times the fragment is small and in the event of rotation injuries, a spiral type fracture line is present with a tendency to insecure fixation. In these cases a short leg KES dressing should be applied.

Attention should be called here to the fact that pinning of the knobs of the ankle is a much simpler procedure in the average adult male than in women in whom these bony prominences of the ankle are sometimes extremely small and difficult to handle.



External Malleolus

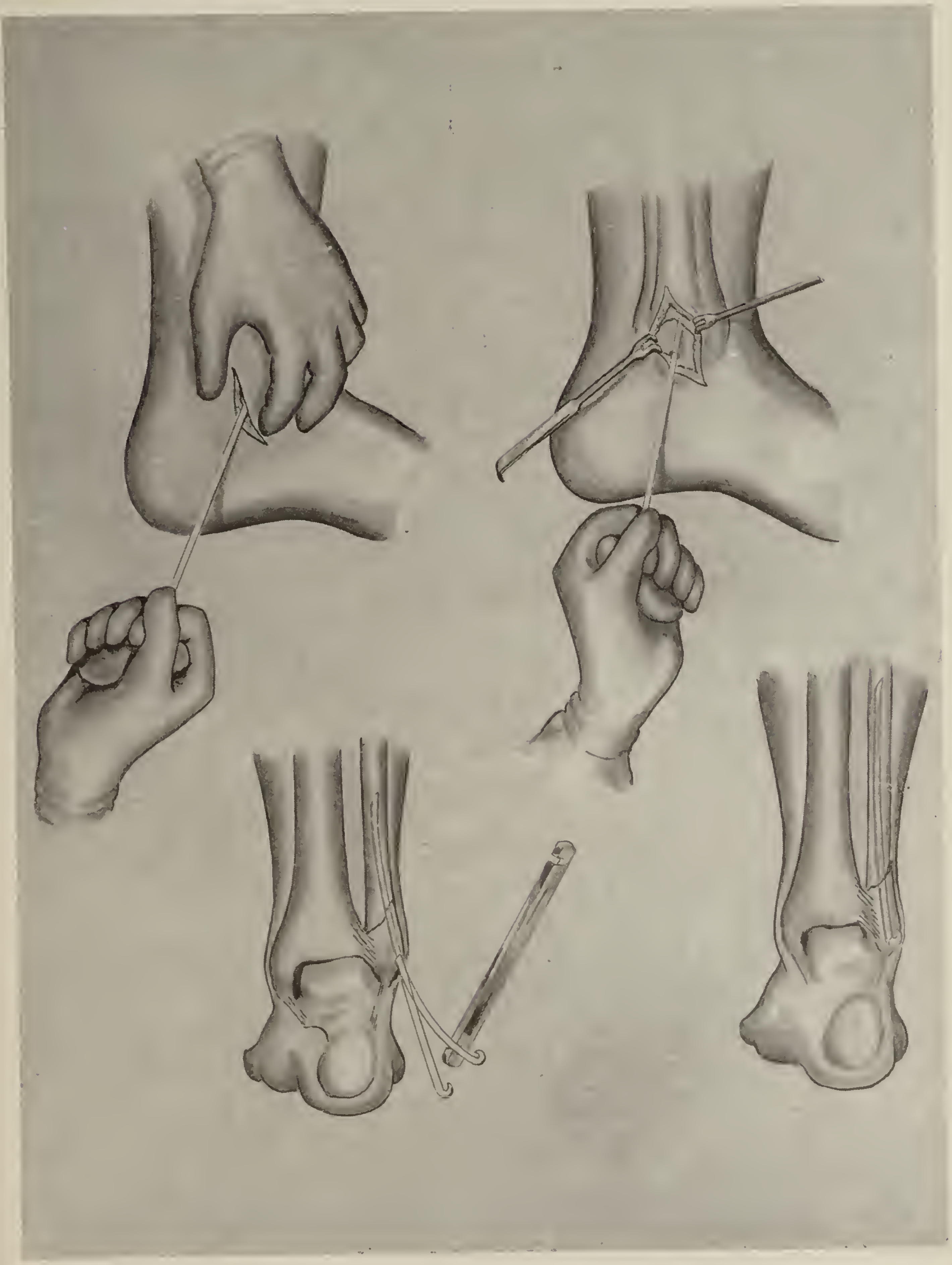
The lower end of the fibula can break and displace in a variety of ways. This bony prominence does not require pinning as frequently as does the internal malleolus. It is not unusual to see a fracture dislocation of the ankle become thoroughly stable after pinning of the internal malleolus alone.

Furthermore, when both malleoli are broken there is frequently associated a vertical fracture of either the anterior or posterior lip of the tibia. This associated fracture rarely requires direct surgical attack if the two malleoli are accurately reduced and pinned. This fragment is held in position by ligament pull.

The technic of pinning the external malleolus is not too different from that of the internal malleolus. When both malleoli are to be pinned they should be attacked simultaneously.

The lower fibula is usually fixed with a straight pin 1/8 inch in diameter. The head should be stress relieved to prevent angulation of the lower fragment. This is necessary because the opening is usually made somewhat laterally in the malleolus and the pin actually passes obliquely through this fragment. As the sled runner point is deflected in the passage up the shaft of the fibula the lower fragment tends to angulate and distract because of the "vase of flowers" principle. The slight curve to the proximal portion of the pin provides proper alignment and compression.

In an occasional case, fixation can be better secured by driving the pin obliquely across the tibio-fibular joint into the shaft of the tibia.



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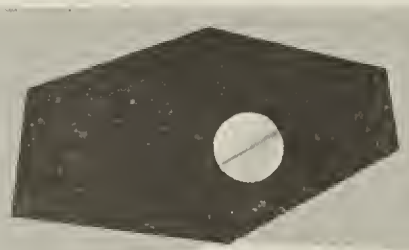

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BOOK SECTION

INSTALLMENT 14

Atlas of Rush Pin Technics

LESLIE V. RUSH, M.D.
Department of Surgery
Rush Memorial Hospital
Meridian, Miss.

This is the fourteenth of a series of monthly installments to be published in *The Mississippi Doctor* during the coming year. The monograph on fracture surgery will be available in bound form in 1955.

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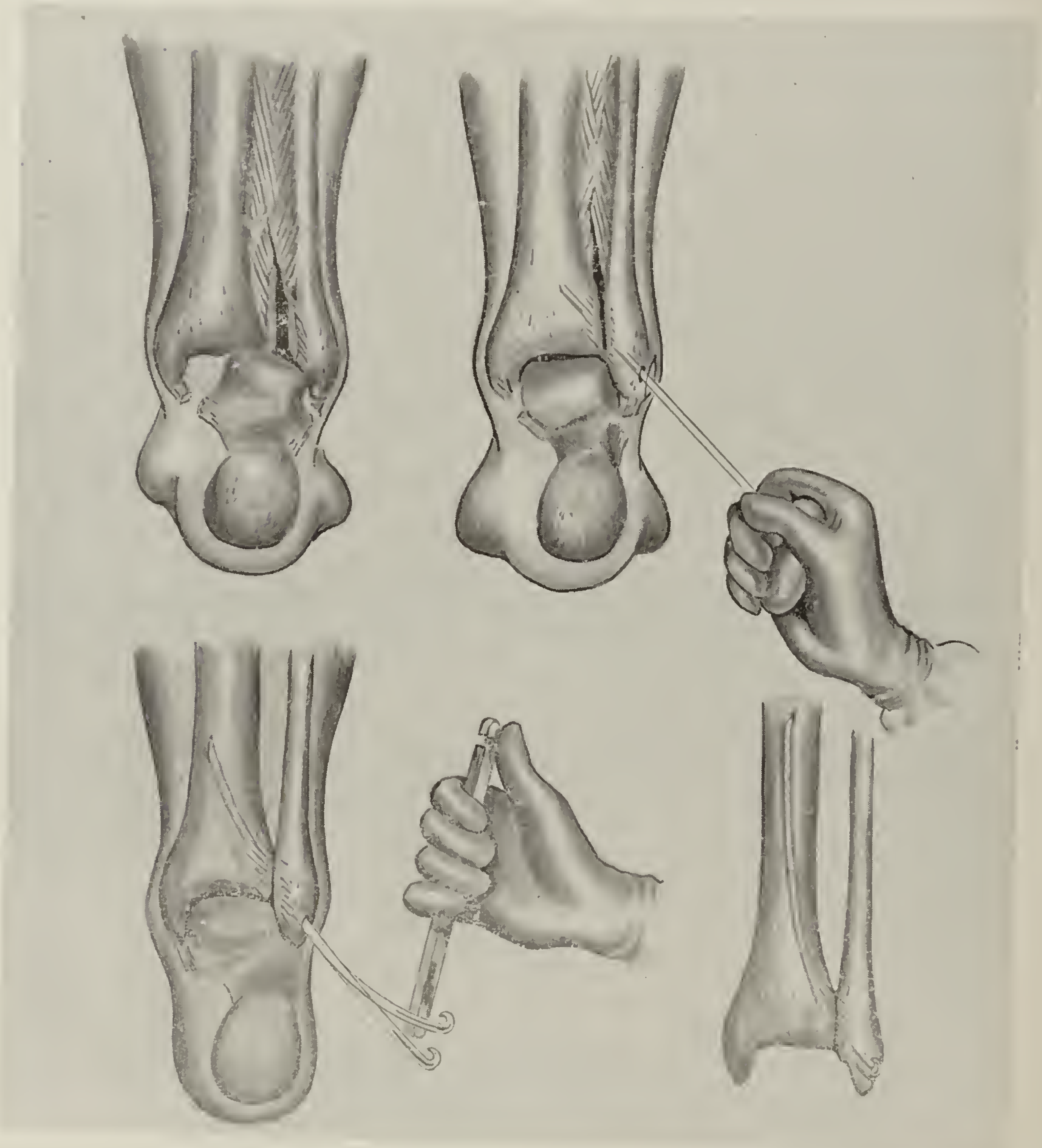
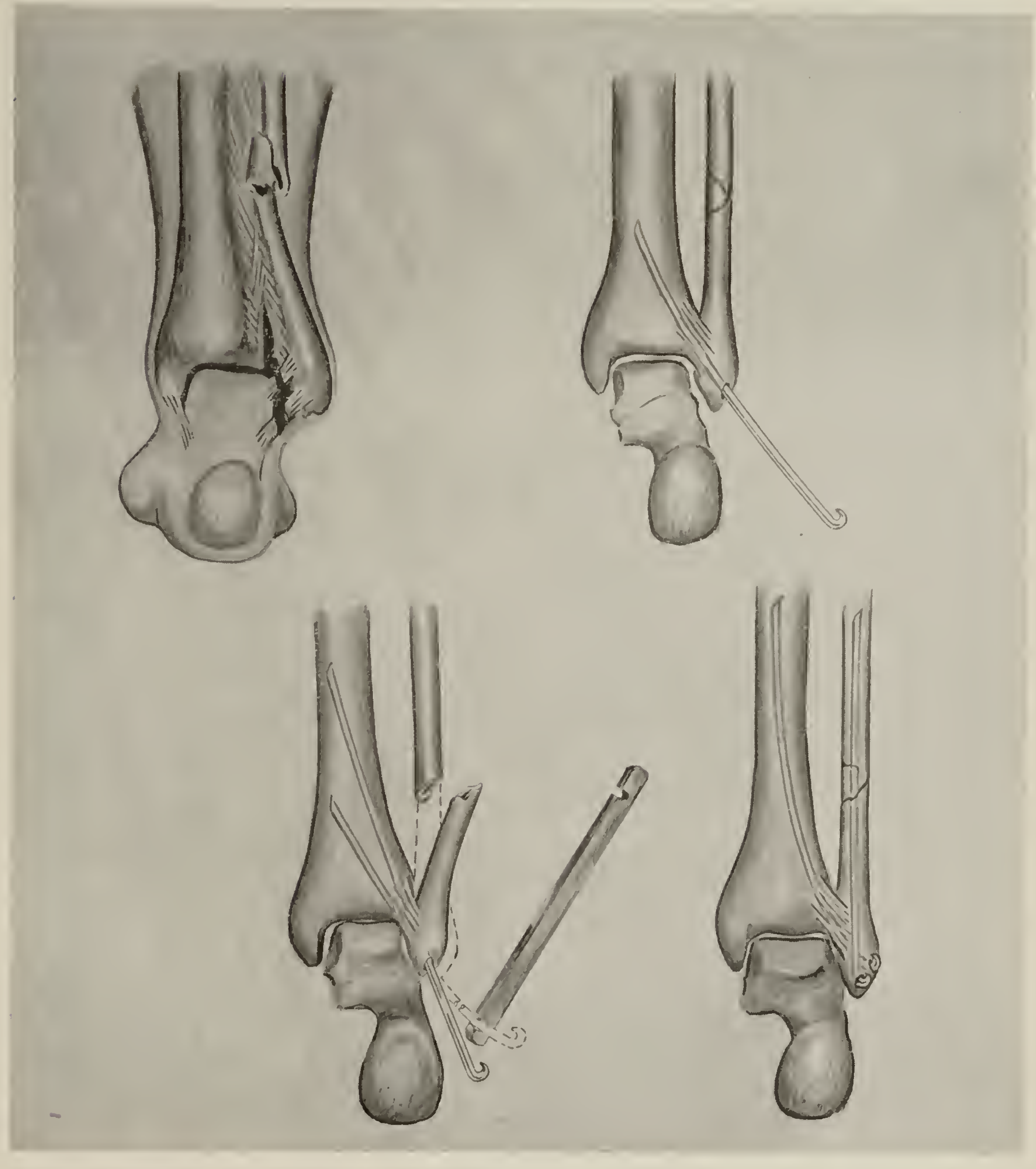


Tibio-Fibulal Diastasis

In this injury the ligaments which bind the tibia to the fibula tear, allowing the mortise joint to widen to varying degrees. Without proper treatment a permanently painful ankle with a tendency to persistent swelling is apt to occur. Before pinning an injury of this type it is necessary for the surgeon to study the articulated skeleton so that he can learn the proper angle in which the pin must be driven. The opening is made obliquely through the external malleolus of the fibula, across the tibio-fibulal joint and into the lower extremity of the tibia. The pin driven in this fashion acts as a lever, and as the sled runner surface of the point is deflected by the far cortex of the tibia, very firm pressure is exerted at the fulcrum which is the tibio-fibulal joint. It is necessary to stress relieve the head before the pin is driven completely home to prevent migration of the head of the pin into the external malleolus.

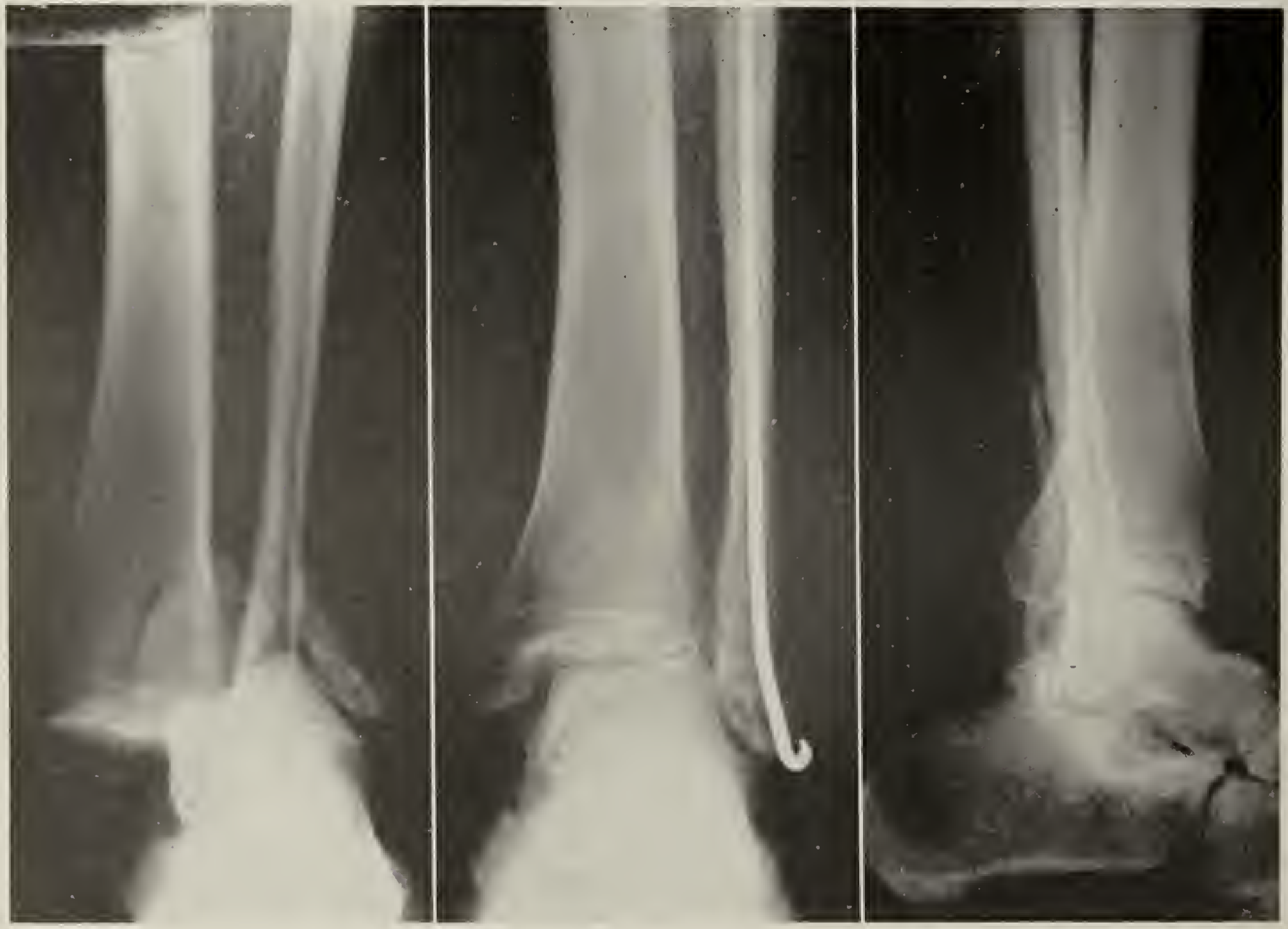


Diastasis with Fracture of Fibula

The dynamic forces exerted by a straight pin being driven into a curved bone are markedly demonstrated in an injury of this type as shown above. The pin can produce very definite angulation of the lower fragment of the fibula unless the head is stress relieved. In a situation of this sort it is usually essential that in addition to the oblique pin across the tibio-fibulal joint, an additional one be driven axially up the shaft of the fibula to transfix the fracture in this area.

23

CASE-GRAMS: ANKLE

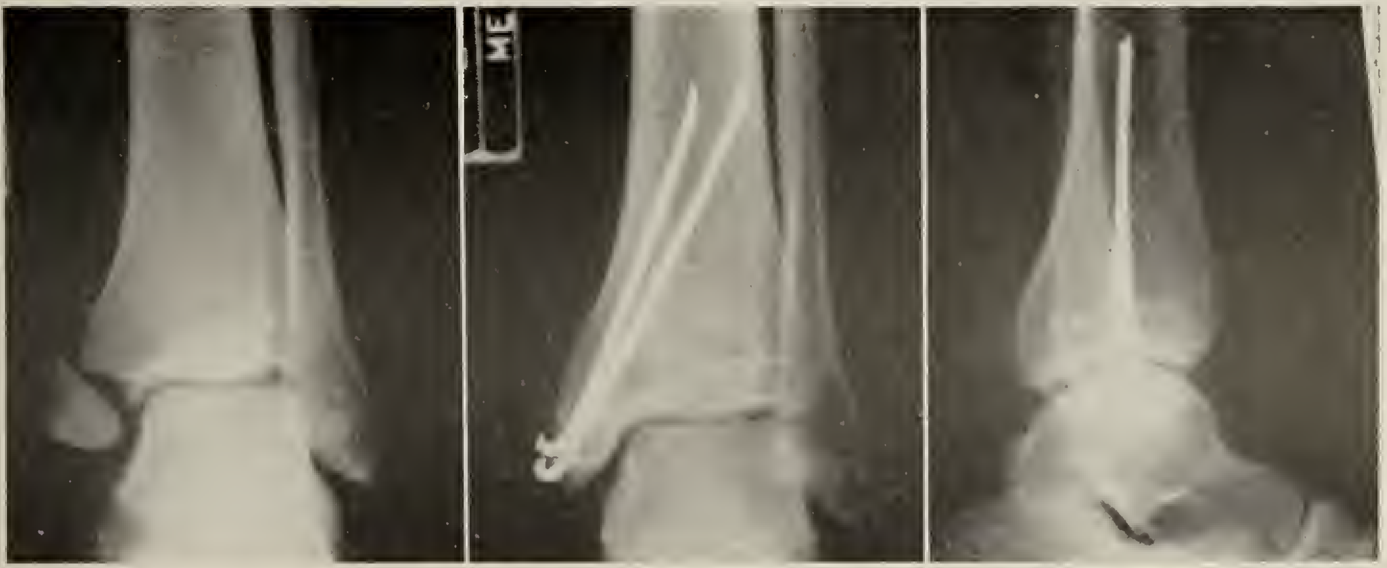


Fracture Dislocation with Diastasis

Male, age 43. Previous attempts at closed reduction were unsuccessful. The internal malleolus was intact, but there was a large vertical fragment of the postero-lateral aspect of the tibia. The external malleolus of the fibula had received an obliquely transverse fracture.

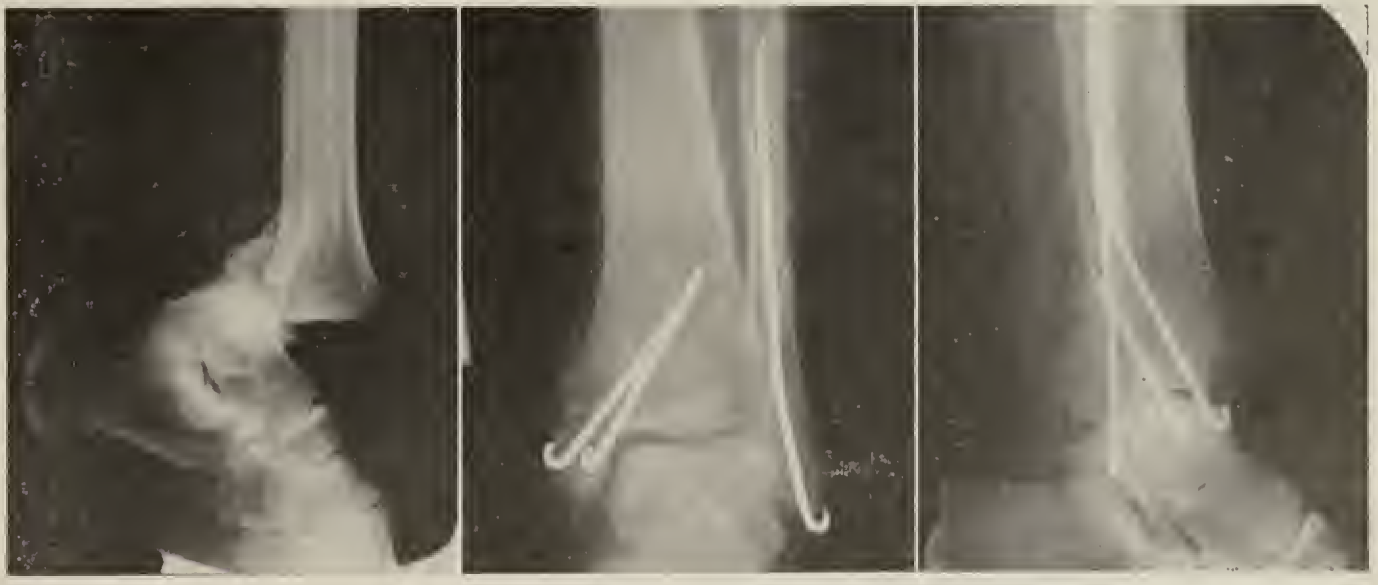
The fibula was treated by open reduction and transfixed with a straight 1/8 inch pin which was given a slight curve at its proximal end. There was tendency to diastasis of the tibia and fibula, and had not this curve been given to the proximal portion of the pin, diastasis would have recurred by the pressure of the head of the pin forcing the tip of the malleolus toward the astragalus with widening of the space between the tibia and fibula above. After reduction and pinning of the fibula, the ankle became relatively stable. Plaster splints were applied with elastic bandage and were worn for three weeks.

This patient had suffered a violent soft tissue injury and edema of the foot and ankle persisted for several months despite the active function. Partial weight bearing was begun at two months. Full activity was not permitted until five months after the injury.



Internal Malleolus

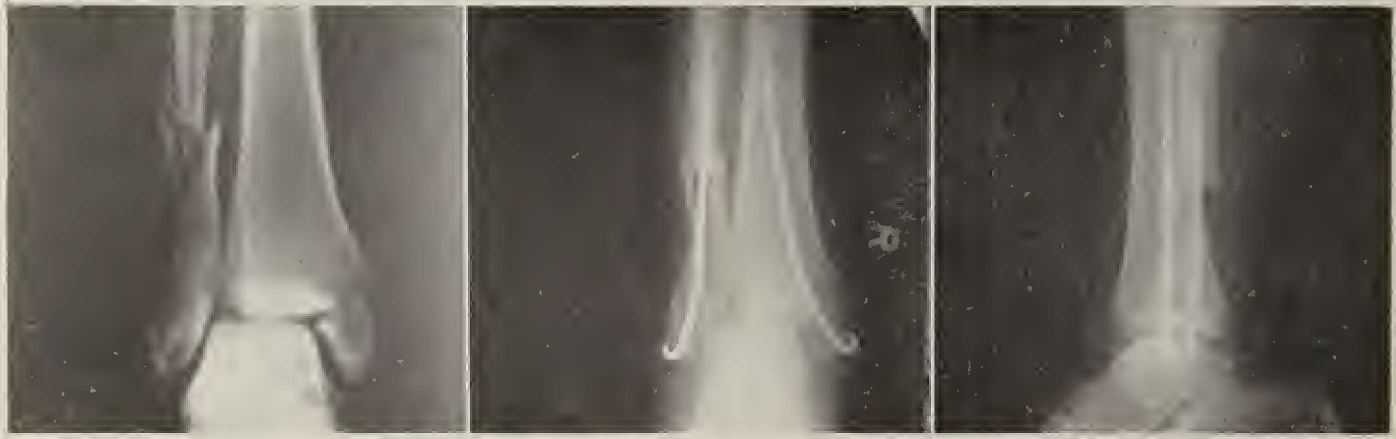
Male, age 20. Fracture of the internal malleolus of the tibia with 90-degree rotation of the fragment. Open reduction was done and fixation accomplished by double pins 3/32 inch in diameter. These pins were removed under local analgesia three months after the injury. Fixation was thoroughly stable and no external splints were necessary. Full function was permitted with the exception of weight bearing which was begun at six weeks.



Bimalleolar Fracture Dislocation

Female, age 51. Operation nine days after injury. Open reduction. Soft tissue was found interposed in the internal malleolus fracture and was removed. Pins used were 3/32 inch diameter. Internal malleolus transfixed with two pins, the fibula with a single pin. The pin of this small diameter was used in the fibula because of the extremely small diameter of the medullary canal in this patient. The fibula pin was straight when driven and produced angulation until the head was stress relieved.

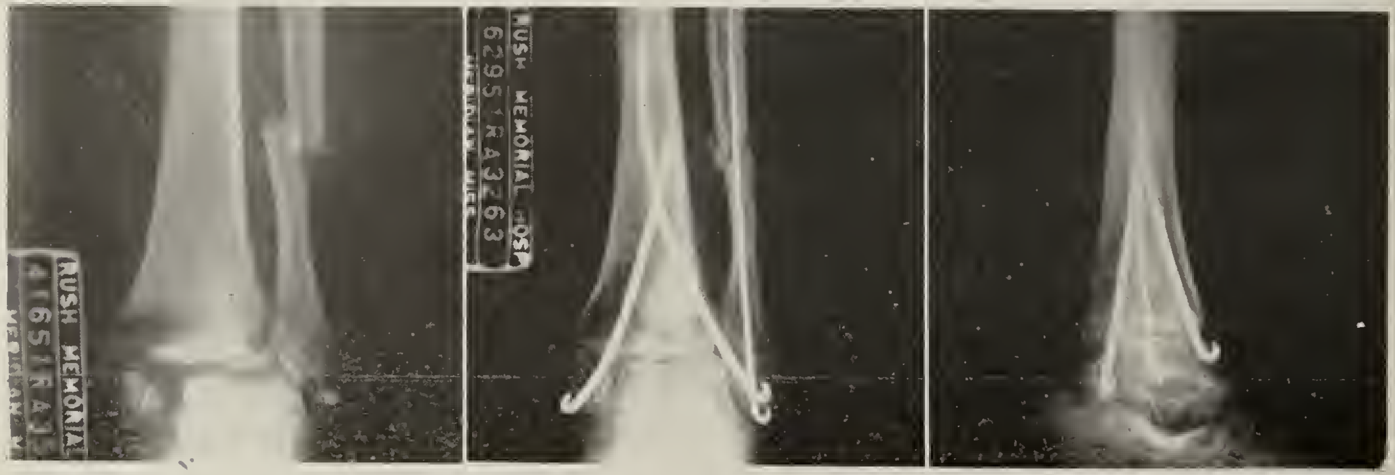
Fixation was thoroughly stable, but KES dressing was applied for fear of displacement of the internal malleolus. At six weeks a walking cast was applied and worn for three additional weeks. Patient discharged at ten weeks bearing full weight but still showing some edema and slight limitation of motion.



Medial Angulation Fractures

Male, age 34. There was a questionable diastasis of the tibia and fibula. Open reduction was done on the internal malleolus. It was transfixed with a 1/8 inch pin which was given a slight curve at its proximal end in order to secure snug compression.

Open reduction was then carried out on the comminuted fracture of the fibula. Axial pinning was done. Note that this pin also was given some curve at its proximal end to prevent a tendency toward tibio-fibular diastasis. KES dressing was applied for three weeks. At that time full function was permitted with partial weight bearing. This patient had full function and was permitted full weight bearing at the expiration of eight weeks.

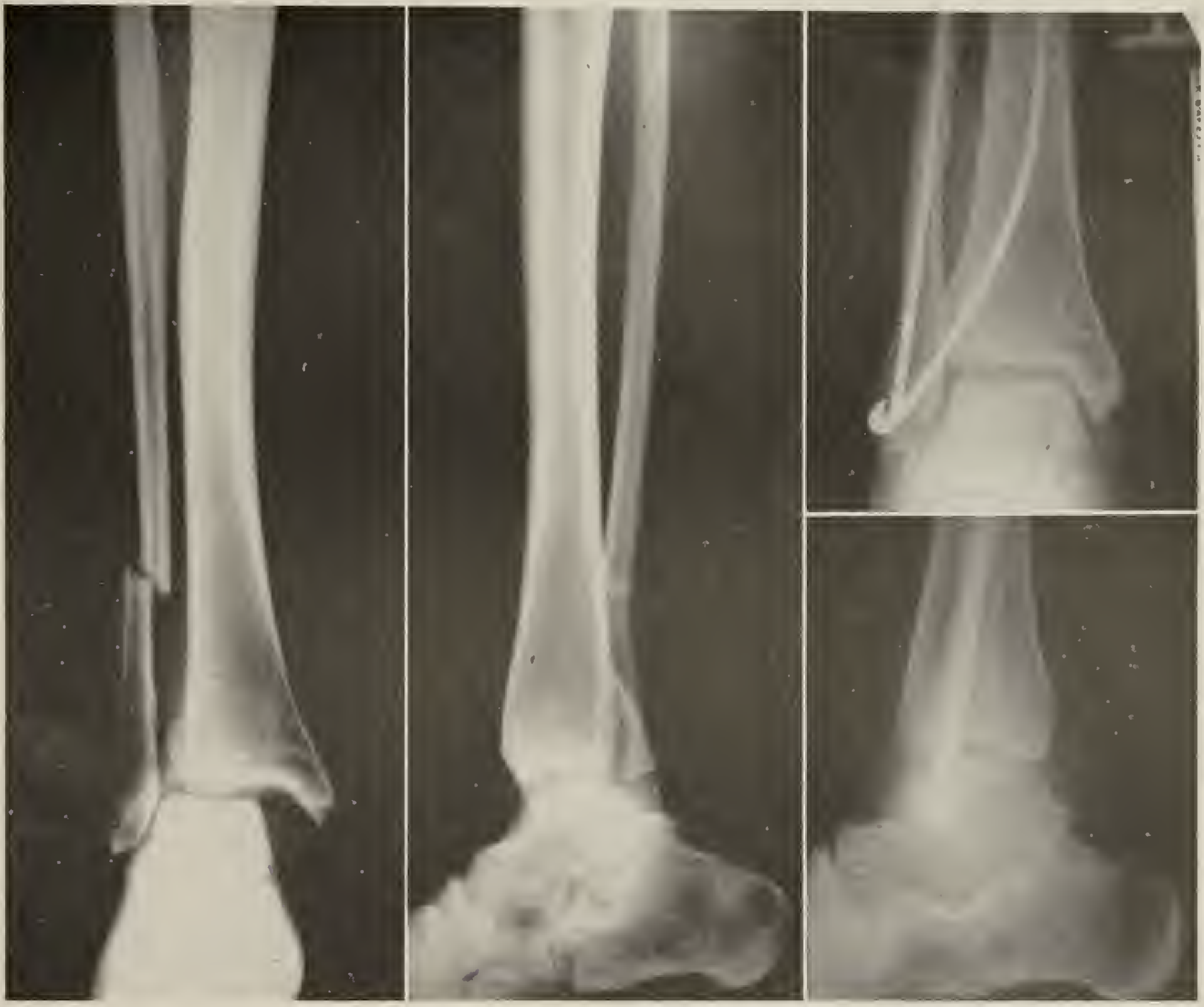


Fracture Dislocation: Six Weeks Old

This patient is an Eskimo, age 31. Violent soft tissue injury. Attempt at closed reduction elsewhere was unsuccessful. Operation had to be deferred for six weeks because of the marked edema and condition of the skin. There was diastasis of the tibia and fibula with angulation of the lower end of the fibula with marked widening of the mortise joint.

Open reduction of the internal malleolus was first unsuccessful because the astragalus could not be maneuvered into position. Open reduction was done on the shaft of the fibula using a 3/32 inch pin.

An oblique pin, 1/8 inch in diameter, was then passed from the external malleolus across the tibio-fibular joint to produce pressure on the external malleolus which gradually shoved the astragalus toward the internal malleolus. This made reduction of the internal malleolus possible. The internal malleolus was then pinned with a straight pin which had been given a curve at its proximal portion.



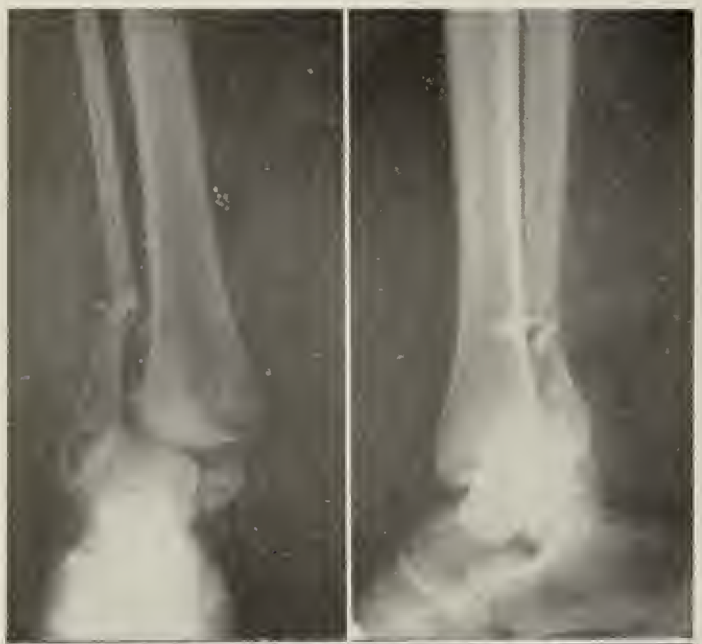
Tibio-Fibulal Diastasis

Male, age 32. In the preoperative film note the wide separation between the lower end of the fibula and that of the tibia and also the wide space which exists between the internal malleolus and the astragalus. There is a vertical fracture of the posterior lip of the tibia with posterior displacement of the foot on the tibia and an oblique fracture in the lower third of the fibula.

Clinically there was a markedly thickened area on the antero-medial aspect of the ankle from an avulsion of the ligaments and the periosteum.

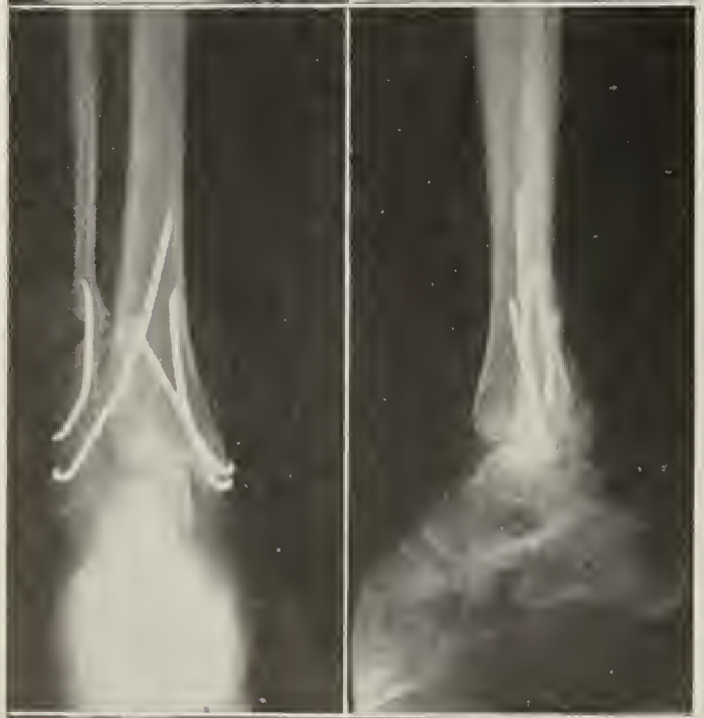
At operation the fibula was repaired first by open reduction, placing the axial 1/8 inch pin. This did not correct the diastasis and it was necessary to pass an additional oblique one-eighth inch pin from the external malleolus across the tibio-fibulal joint into the medullary canal of the tibia. This resulted in firm compression of the two bones.

A curved medial incision was then made to repair the ligaments which were found to be avulsed from the foot and were invaginated into the ankle joint. The reduction of the fibula resulted in complete repositioning of the fragment which had fractured from the posterior lip of the tibia. Fixation was thoroughly stable. KES dressing was applied to be worn two weeks. Full weight bearing was permitted in three months. It is not intended to remove the pins unless they cause trouble.



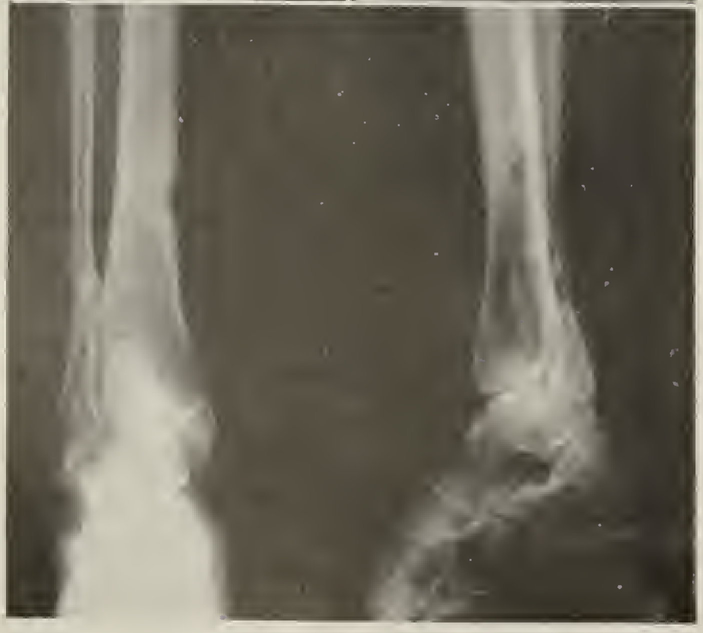
Irreducible Fracture Dislocation

Female, age 20. This was an angulation injury. The foot displaced backward upon the tibia resulting in comminuted fracture of the lower end of the fibula, fracture of the posterior lip of the tibia, and fracture of the internal malleolus of the tibia. Note also that both malleoli remain attached by ligaments to the astragalus and are displaced posteriorly with the foot. Three unsuccessful attempts were made to reduce this dislocation completely.



Pinning

At operation the posterior tibial tendon was found interposed between the internal malleolus and the shaft of the tibia. This operation was done in 1947 before suitable steel was available with which to make the pins. The pins used here were made of Type 431 Stainless Steel. The oblique pin across the tibio-fibulal diastasis fractured within the bone.



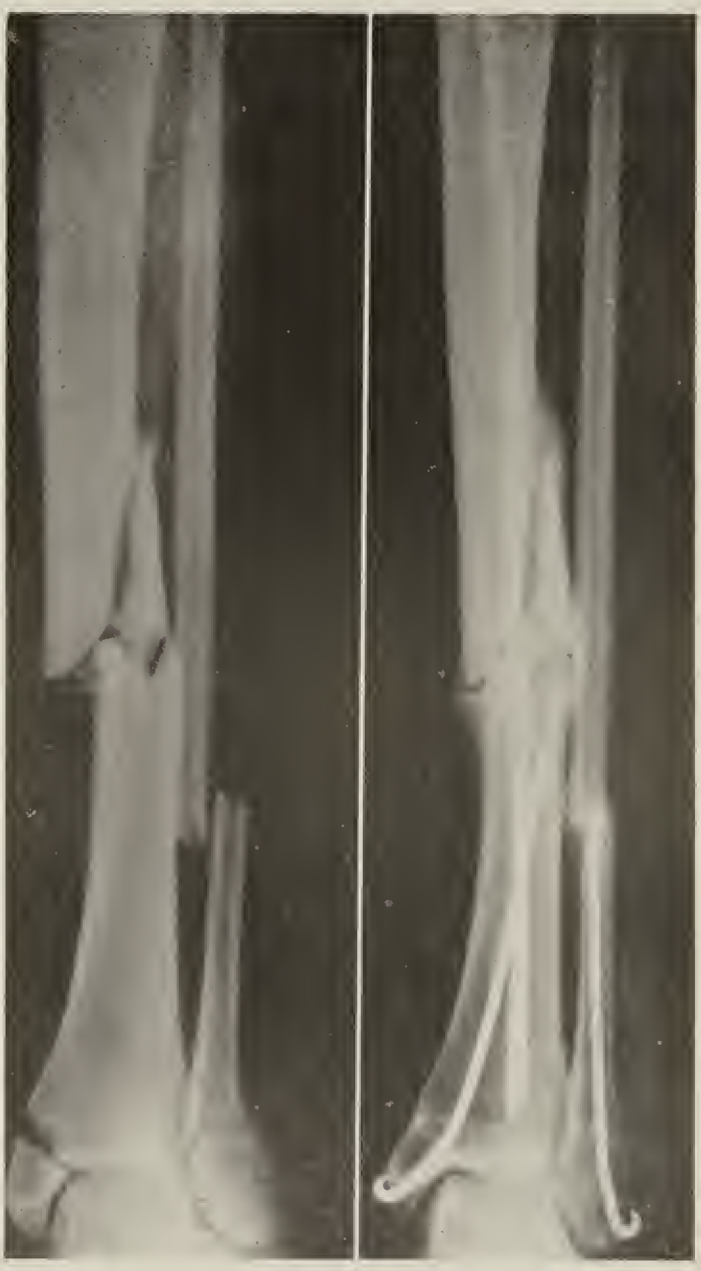
Follow-Up

Four months after surgery the pins were removed because of fear of corrosion. It was necessary to cut a slot in the tibia in order to remove the broken pin. This area is demonstrable in the follow-up films. In this case good union occurred without loss of function or deformity.

Leg and Ankle

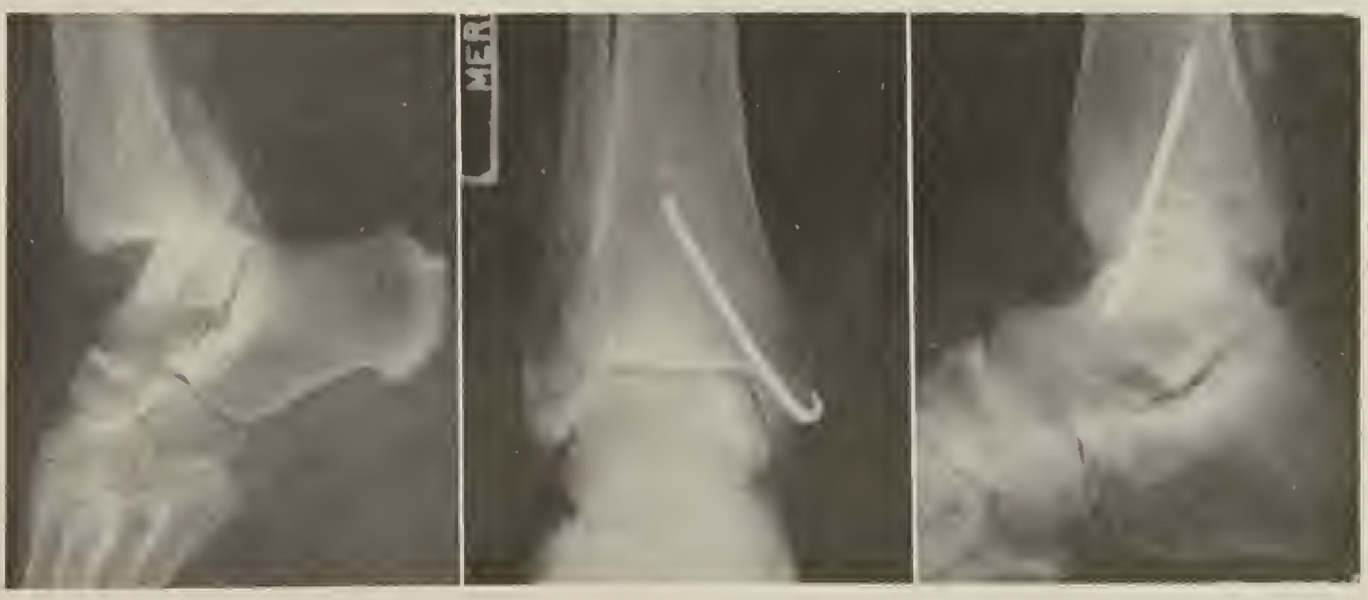
(Right). Male, age 41. Tibial shaft transfixed by closed pinning using the 3/16 inch pin slightly curved.

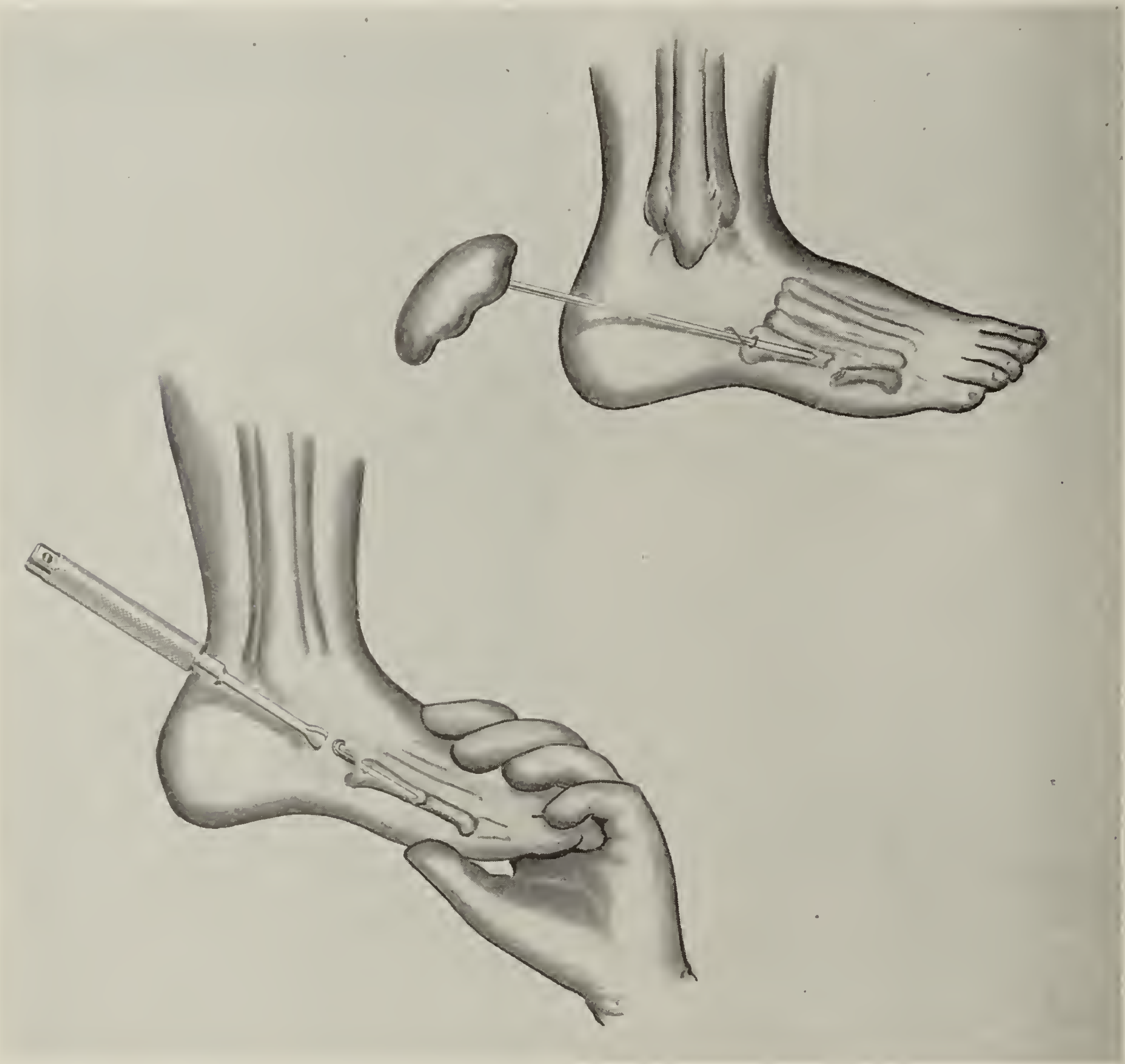
Internal and external malleoli transfixed by open reduction using 1/8 inch pins. Note that both pins were given some curve at the proximal end. The short pin was used in the fibula to avoid making an additional incision over the shaft fracture. The ankle was thoroughly stable after pinning, but a KES dressing was applied because of the comminuted tibia fracture.



Trimalleolar Fracture Dislocation

(Below). Female, age 46. There was interposition of soft tissues in the internal malleolus fracture. Open reduction of the internal malleolus with removal of soft tissue from the fracture line. A single pin 3/32 inch in diameter was applied. Fixation was relatively stable after fixation of the internal malleolus only, and complete reduction of the dislocation resulted in the reduction of the posterior lip fracture of the tibia. KES dressing was worn three weeks and replaced by a walking cast which was worn seven weeks. Partial weight bearing was begun at seven weeks with full weight bearing at three months.





Pinning of metatarsals is not often necessary, but can be very effective.

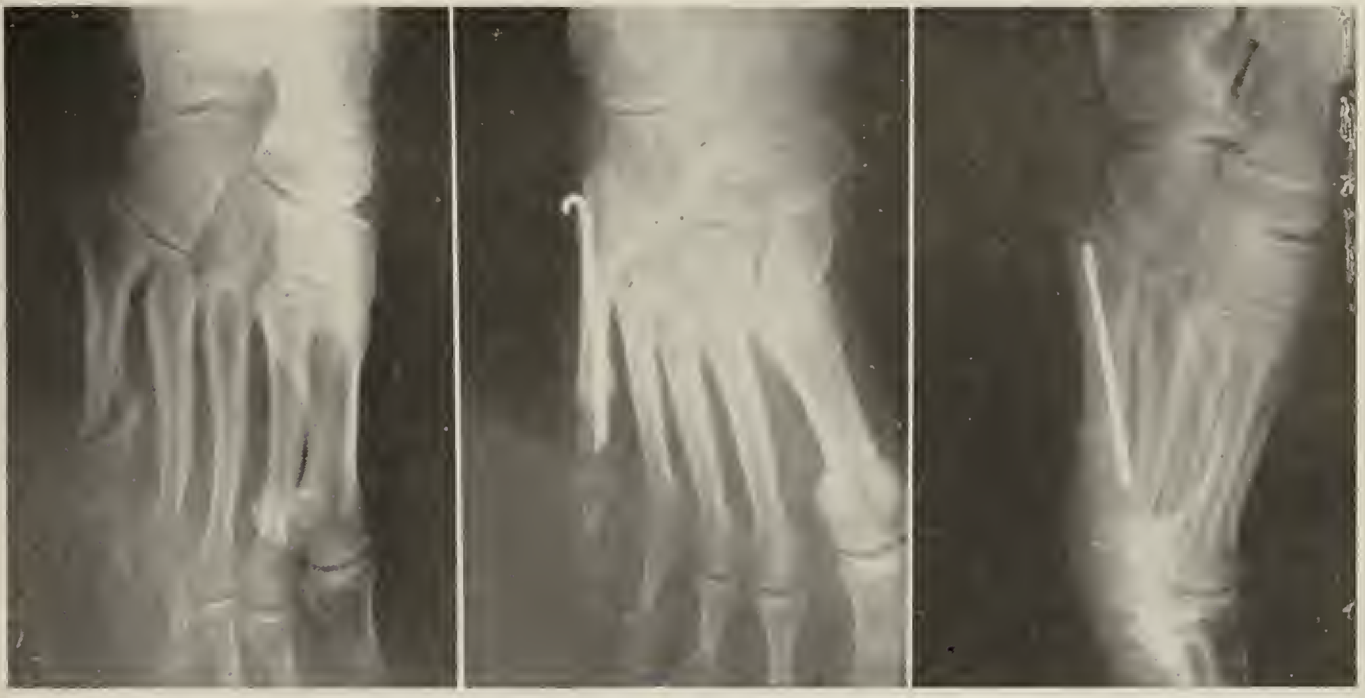
24

THE FOOT

Medullary pinning is not often indicated in fractures of the foot. Most fractures in this area heal satisfactorily, but it is important to avoid distraction or deformity which would result in any type of a bony prominence in the sole of the foot which would be painful on weight bearing.

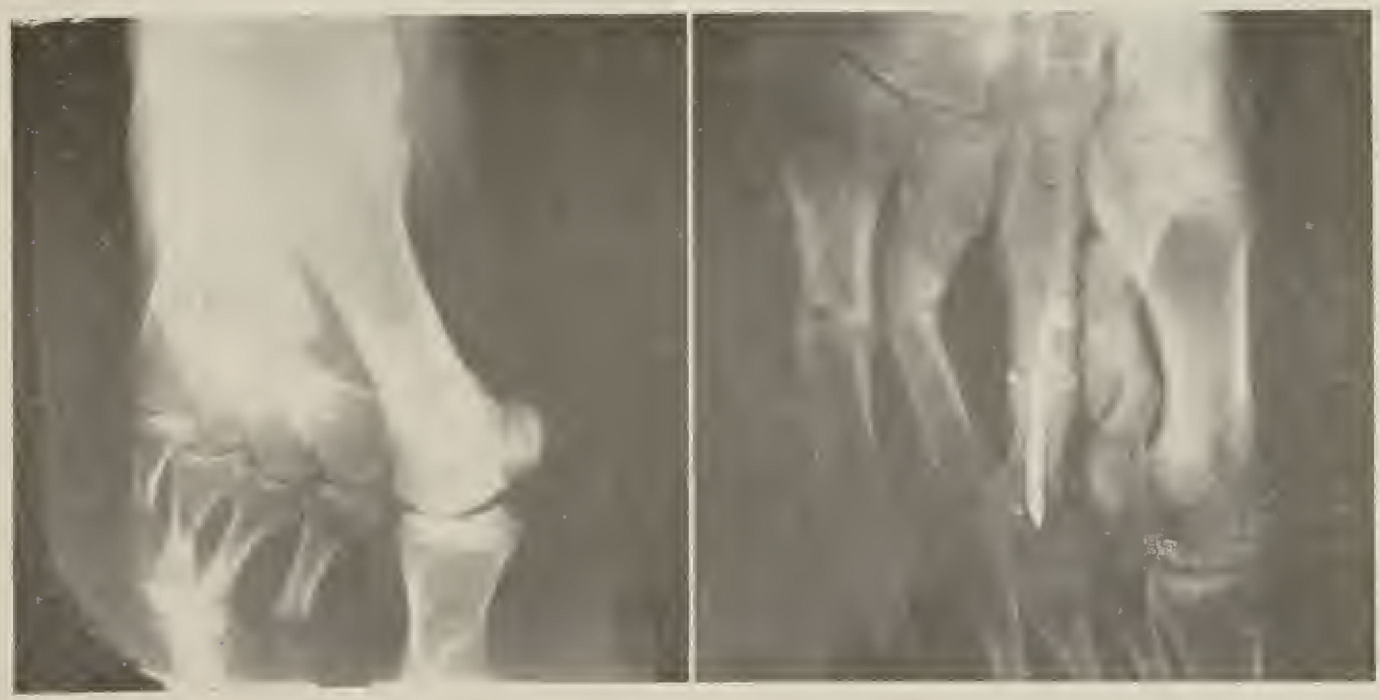
The metatarsals can usually be pinned satisfactorily by open reduction using a pin 3/32 inch in diameter. Here it is necessary that the pin be of exact length.

The opening is made in the dorsal surface of the proximal portion of the bone using the awl reamer, and a straight pin is driven axially down the bone to the fracture site. The fracture is reduced, and the pin driven into the distal fragment. Fixation is usually stable enough that plaster splints are not necessary, but they might occasionally be needed.



Distraction Metatarsal V

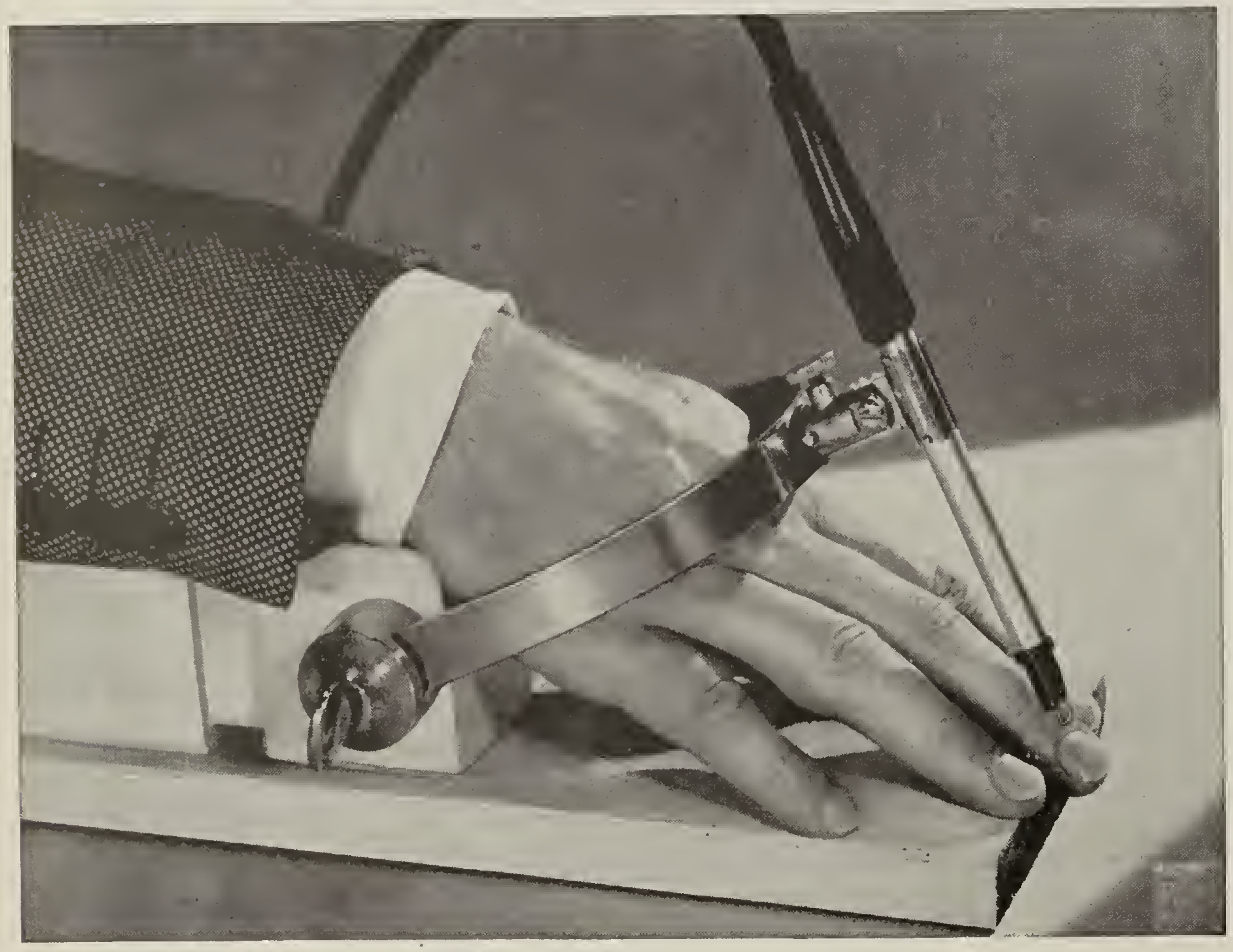
Male, age 47. Three months after injury there was a persistent distraction of the oblique fracture of metatarsal V with no evidence of callus. In order to produce compression the point of the pin was driven medial to the distal fragment to force it into position. In this particular case union might not have occurred had the pin been driven axially into the distal fragment. Plaster boot was worn eight weeks. Weight bearing was not permitted for three months.



Non-Union Metatarsal II, Mal-Union Metatarsal III

In this case it would have been easier to have introduced the pin at the proximal extremity of metatarsal III. The short pin gave good fixation, but it was difficult to introduce the pin at this low level. In metatarsal II a bone graft has been applied.

Physiological test compares Kent's "Micronite" Filter with other cigarette filters



"KENT" AND "MICRONITE" ARE REGISTERED TRADEMARKS OF P. LORILLARD COMPANY

To compare the efficiency of various filters as they affect physiological responses in the cigarette smoker, drop in surface skin temperature at the last phalanx was measured.

Using well-established procedures, the subject smoked conventional filter cigarettes and the new KENT with the exclusive Micronite Filter.

For every other filter cigarette, the drop in temperature averaged over 6 degrees. For KENT's Micronite Filter, there was no appreciable drop.

These findings confirm the results of other scientific measurements that show these facts: 1) KENT's Micronite Filter takes out *far more* nicotine and tars than any other cigarette, *old or new*. 2) Ordinary cotton, cellulose or crepe paper filters remove a small but ineffective amount of nicotine and tars.

Thus KENT, with the first filter that really works, gives the one smoker out of every three who is susceptible to nicotine and tars the protection he needs . . . while offering the satisfaction he expects of fine tobacco.

For these reasons, smokers have made the new KENT the most popular new brand of cigarette to be introduced in the last 20 years.

If you have yet to try the new KENT with the exclusive Micronite Filter, may we suggest you do so soon?

TWENTY
KENT
CIGARETTES
WITH THE MICRONITE FILTER
KENT

BOOK SECTION

INSTALLMENT 15

Atlas of Rush Pin Technics

LESLIE V. RUSH, M.D.
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Rush Memorial Hospital
Meridian, Miss.

This is the fifteenth of a series of monthly installments to be published in *The Mississippi Doctor* during the coming year. The monograph on fracture surgery will be available in bound form in 1955.

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The fractured os calcis is very rarely an indication for pinning.

The Os Calcis

This injury is usually received when the victim falls from some height, landing with the weight primarily upon the heel. This is an impaction fracture, the os calcis being driven upward toward the ankle in such fashion as to crush and widen the os calcis with resultant flattening of the arch. Once the deformity has been established it is maintained by the pull of the tendo Achillis.

Any satisfactory treatment must be designed to overcome the pull of the calf muscles for a period of many weeks until healing of the injured bone is complete. In addition the lateral surfaces of the bone must be molded in such fashion as to approximate its original contour.

While pinning of the fractured os calcis is not generally recommended, our experience in one very difficult case does suggest that it is a concept worthy of further consideration.

CASE:

Compound Fracture Os Calcis

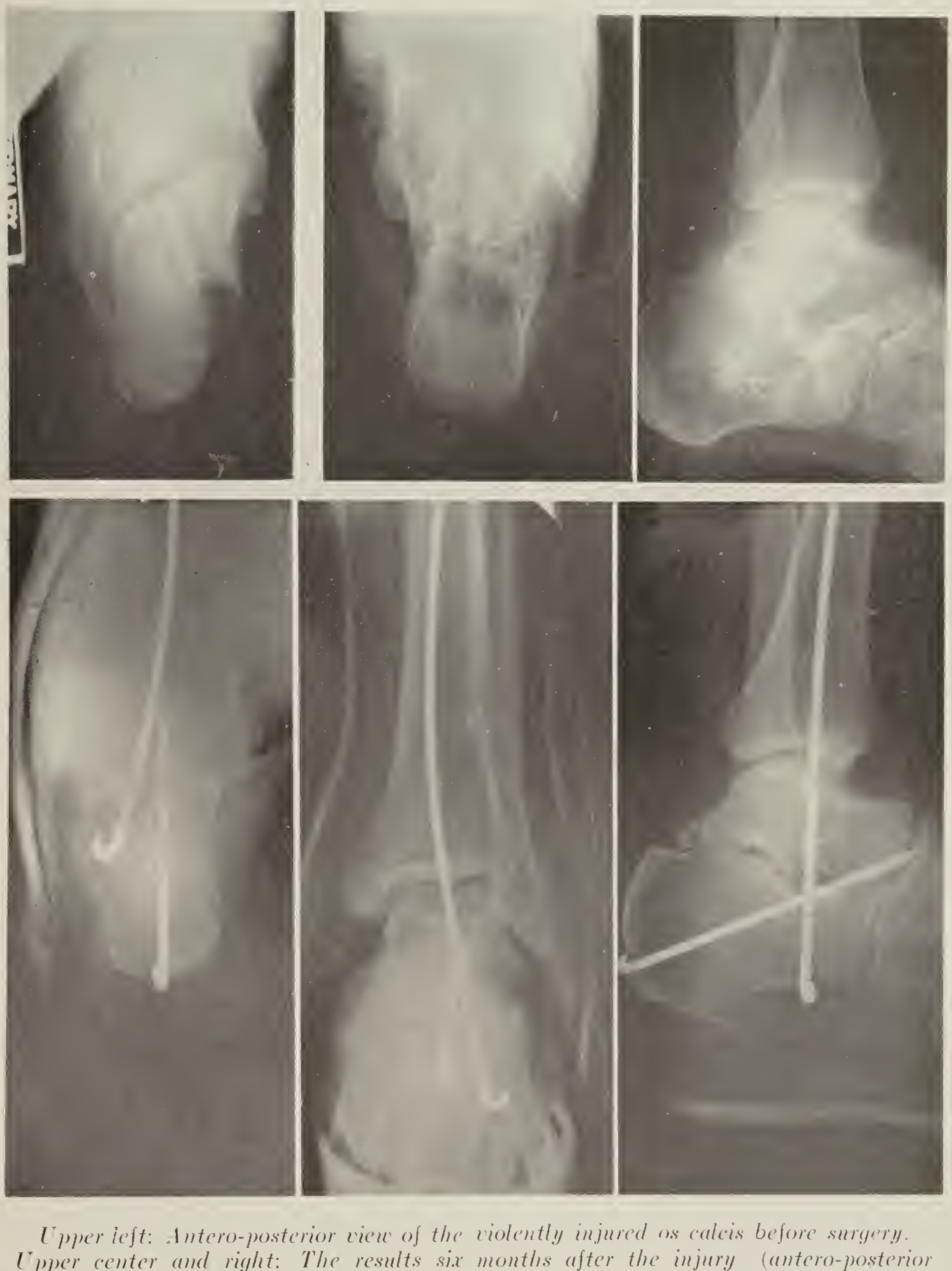
Male, age 36. There was a large lateral rent in the soft tissues over the os calcis. By manual manipulation the fragments could be reduced but would not remain in satisfactory position. Downward traction on the posterior portion of the astragalus would not prevent the lateral displacement and angulation of the fragment.

With the bone in the corrected position a 1/8 inch pin was driven axially through the os calcis and into the proximal tarsals. A second 1/8 inch pin was driven from the lateral aspect of the os calcis upward across the astragalus and into the tibia. This resulted in very excellent reconstruction and fixation. In introducing this latter pin the mistake was made of not stress relieving the head. The head of the pin migrated into the bone and was removed at nine months with fairly marked difficulty. The axial pin which was introduced through the posterior aspect of the os calcis migrated backward and had to be removed at eight weeks.

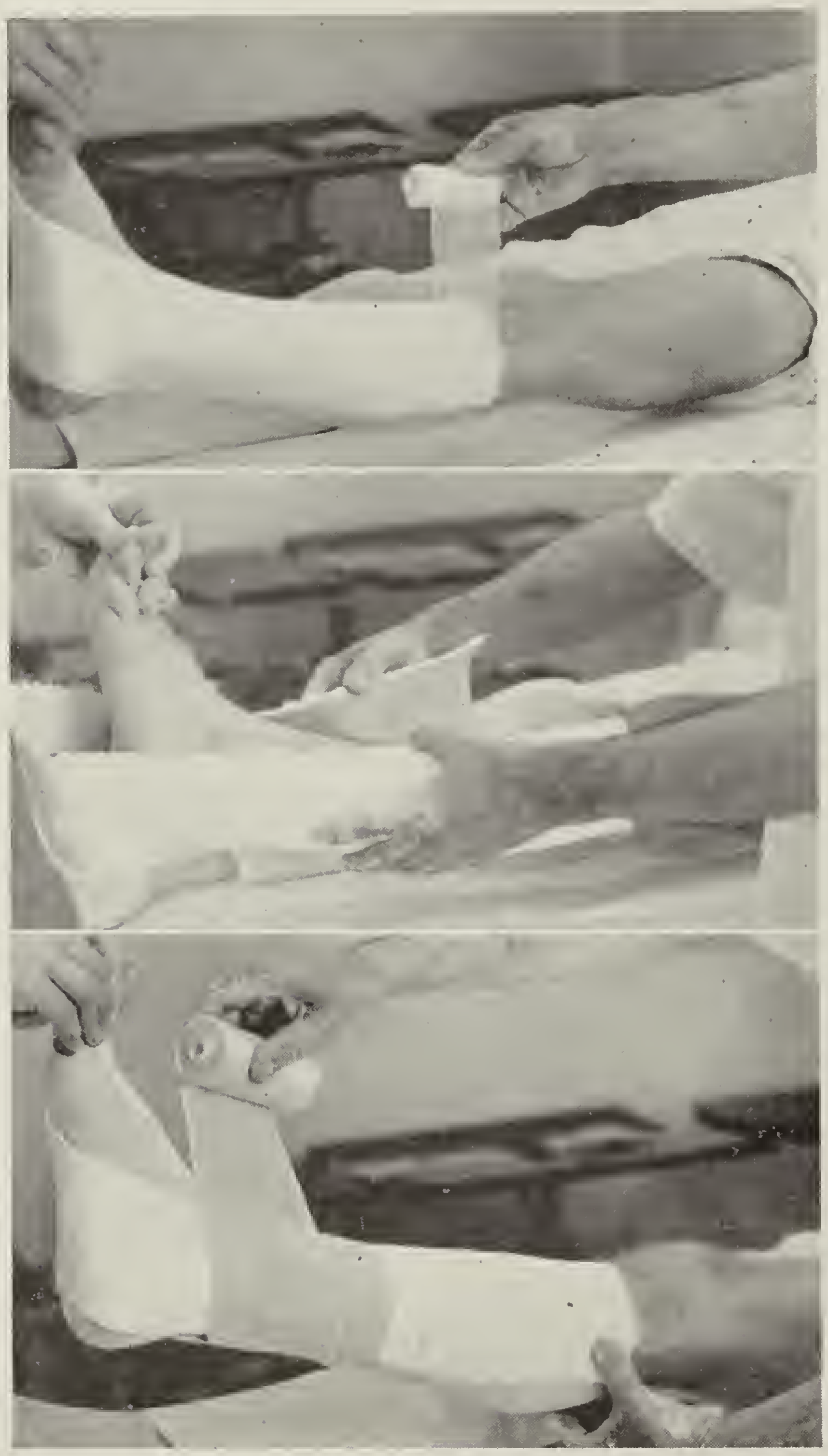
The entire lower leg and foot were immobilized in a plaster boot for nine weeks.

As shown a splendid end result was secured, and the passage of the pins across the joints of the foot and ankle caused no permanent limitation of motion nor evidence of arthritis in these joints.

Pinning of the average fracture of the os calcis appears to be contra-indicated. In this one isolated example the pins did serve a most useful purpose.



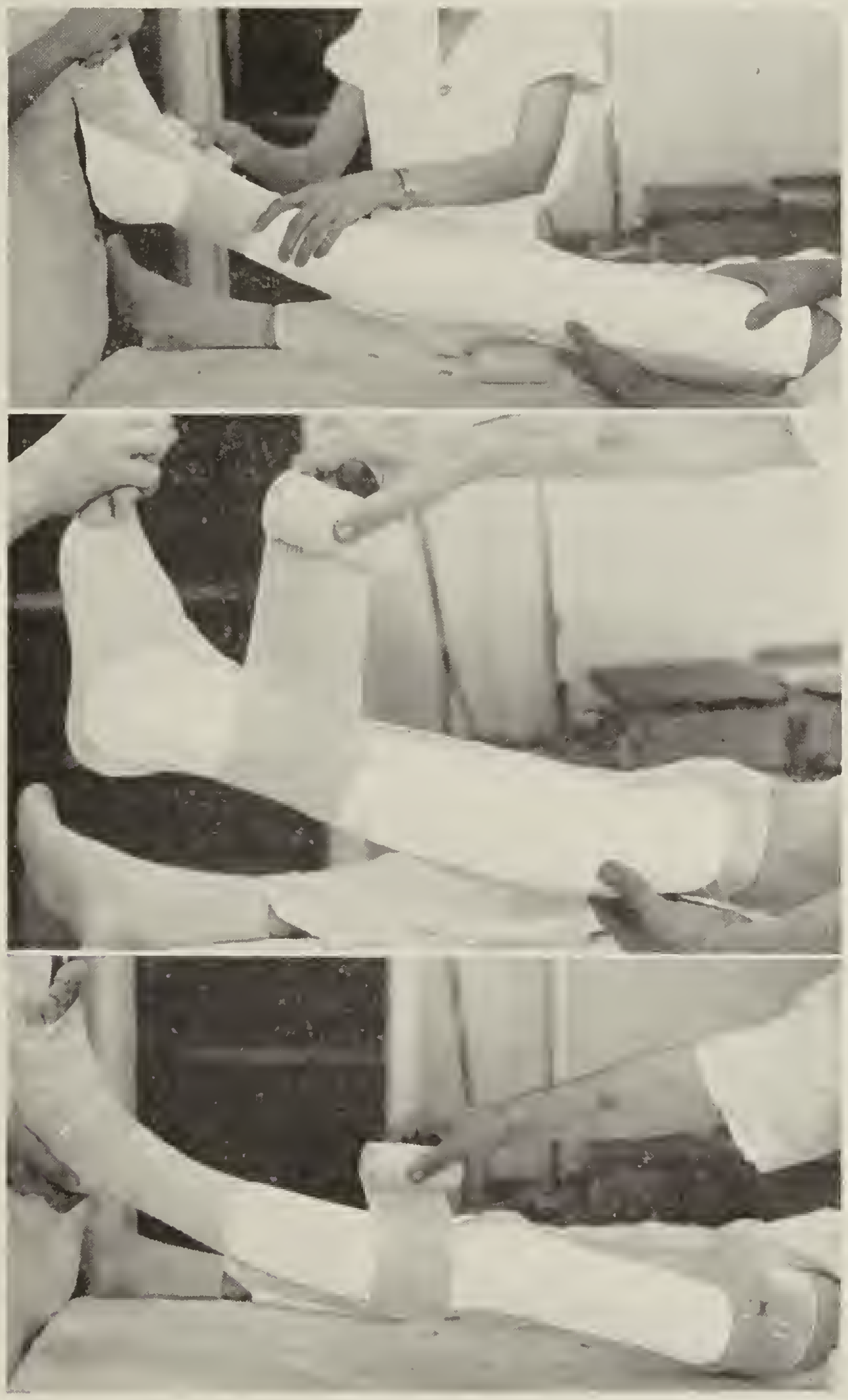
Upper left: Antero-posterior view of the violently injured os calcis before surgery. Upper center and right: The results six months after the injury (antero-posterior and lateral views.) Lower Row: Showing the manner in which the pins were applied.



REMOVABLE PLASTER SPLINTS
Foot and Ankle Region

It is a simple matter to make sugar tong splints for the foot and ankle using ready made commercial plaster splints. The wet splints are applied directly upon the skin surface. Four inch plaster splints are molded upon the medial and lateral surfaces of the ankle and foot, being placed in a curved manner, the splint beginning beneath the ball of the foot near the base of the toes and extending up the sides of the ankle and upon the lower leg. They are temporarily held in position by turns of circular bandage and remain in place until setting has occurred.

The splints are then removed and are reapplied over one coating of elastic bandage and held in place by a second covering of elastic bandage which overlays the molded plaster splints.



Knee and Leg

The splints can be made longer, to extend completely to the groin if necessary by adding to the plaster splints and simply increasing the length of the dressing.

External immobilization should never be applied empirically, but to accomplish certain specific purposes such as the prevention of motion of a specific joint or to prevent angulation or tendency to rotation in a particular fracture. For instance a fracture of the shaft of the tibia may show no tendency toward rotation but some tendency to angulation on weight bearing. In this case plaster splints are molded from the sides of the knee down upon the sides of the ankle, but do not include the foot.

If rotation also is to be guarded against the splint should be molded well up beyond the knee and well down upon the ankle, but flexion and extension of the foot on the leg might well be permitted. In a case of this sort the entire foot should be enveloped by the elastic bandage but not necessarily by the plaster itself.

Recapitulation: The Lower Extremity

Choice of Procedure

FEMUR: The single curved pin, (1/4 inch) introduced from the side of the great trochanter is the usual procedure for fractures of the upper two thirds of the femur shaft in adults and adolescents.

The single straight pin (1/4 inch) is introduced above and medial to the trochanter when the upper fragment is short or too comminuted for good fixation. The smaller pin (3/16 inch) is used in the same manner in shaft fractures of small children.

Double pins (3/16 inch) driven upward from the condyles are indicated for the supra-condylar area and condyles. They may also be used for fracture at the junction of the middle and lower thirds, but permit some rocking at the fracture site. Such a fracture is best fixed by a curved pin (1/4 inch) driven downward as described above, supplemented by a single pin (3/16 inch) driven upward from the medial condyle.

TIBIA: The single curved pin is best indicated for the mid-portion of the shaft. The smaller pin (3/16 inch) is easier to direct and is indicated in most women and children. The larger pin (1/4 inch) gives best fixation for most men.

Double pins (3/16 inch) driven downward from the lateral surfaces of the condyles give best fixation in the proximal and distal portions of the shaft as well as the condyles. They are especially indicated in comminuted fractures of the shaft.

ANKLE: Emphasis should be placed on accurate reconstruction of the malleoli. Pins used may be 1/8 inch or 3/32 inch in diameter.

After Treatment

External Immobilization

The KES dressing has many advantages over the circular cast. In the upper two-thirds of the femur external immobilization is almost never indicated. In certain comminuted fractures of the lower portion of the femur, particularly in elderly people, a long KES dressing is desirable. This is also true in certain fractures near the region of the knee especially in elderly people and in those in which comminution is severe.

Fractures of the mid-shaft of the tibia rarely need immobilization if the fibula is not fractured or if fixation is stable. If there is doubt, however, apply KES dressing for fractures of the tibia shaft. Comminuted fractures of the tibia, compound fractures, and certain fractures of the ankle region often do much better if external immobilization is applied.

Removable plaster splints can be used to very good advantage. If the patient has been trained to reapply them the splints can be removed periodically for exercise to prevent stiffness of the joints, muscle atrophy and the very troublesome post-traumatic edema of the ankle and foot.

In fractures of the lower portion of the femur it is extremely important to secure full knee motion quickly, because once stiffness of the knee occurs, attempts at motion will cause rocking at the fracture site which will interfere with healing.

The experienced surgeon will have little difficulty in determining when the fixation is stable enough that the KES dressing can be omitted or removed part time for exercise.

Weight Bearing

Weight bearing should be allowed when it is felt that fixation is stable enough or healing is secure enough that the weight of the body will not cause rocking at the fracture site.

Early function is strongly desirable, but weight bearing should be permitted cautiously as tendency to angulation or rotation at a fracture site can very definitely delay healing and can even produce non-union. Do not permit weight bearing until the fracture is clinically stable. Weight bearing should be instituted gradually. Pain at the fracture site is an indication that too much weight is being borne.

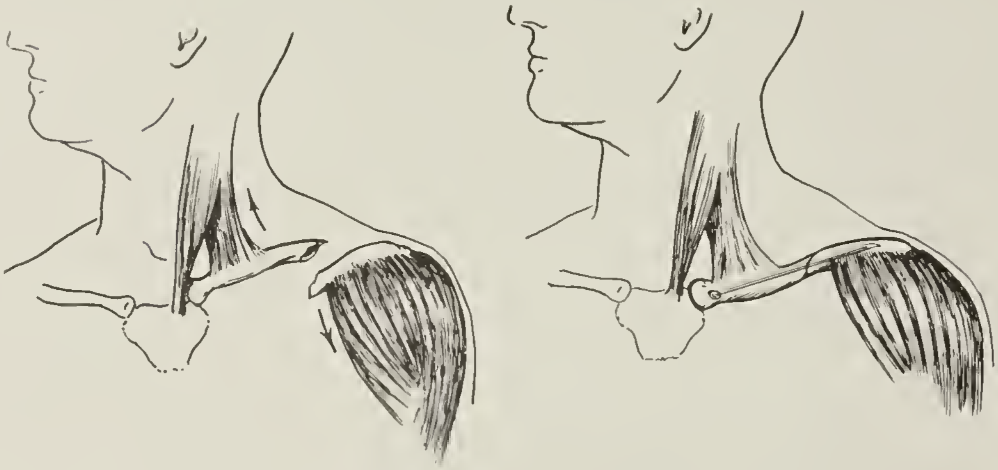
Section III

ATLAS OF RUSH PIN TECHNICS

The Upper Extremity

Section I dealt with general considerations in medullary pinning.

Section II dealt with the lower extremity.



The clavicle usually breaks in the mid-third. Because of the pull of the sterno-mastoid muscle, the medial fragment is displaced upward. The outer fragment is drawn downward by the weight of the shoulder and the pull of the deltoid muscle.

25

THE CLAVICLE

This bone heals remarkably well and good healing usually occurs despite the method of treatment. An enormous number of treatments have been described for this fracture, most of them being extremely uncomfortable for the patient and having little to recommend them other than simple immobilization of the shoulder.

This bone usually breaks in its mid-third or at the junction of the middle and outer-thirds. The medial fragment is displaced upward by the pull of the sterno-mastoid muscle. The outer fragment is displaced downward by the weight of the shoulder and the pull of the deltoid muscle, and there is tendency to overlapping. The fracture tends to reduce itself when the patient is recumbent and becomes widely displaced upon standing.

In fractures of the acromial end of the clavicle there is little tendency to displacement and the only treatment required is simple immobilization of the shoulder.

In small children these fractures heal so quickly and so kindly that the simplest conservative treatment such as immobilization with adhesive plaster, or figure of eight bandage is all that is necessary.

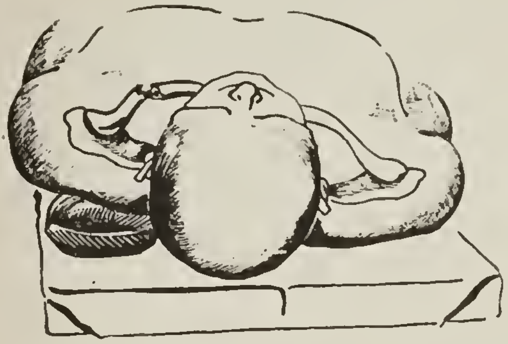
Pinning is indicated in most adults and adolescents because with the so-called conservative treatment some deformity is to be expected. With pinning, good healing is to be expected without deformity. No external immobilization is applied and the patient is immediately comfortable and permitted full function of the shoulder.

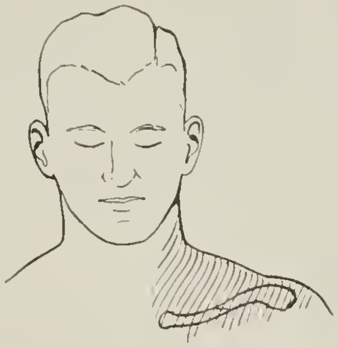
In young women the post-operative scar can be a disagreeable factor and in those cases where the scar is of extreme importance simple recumbency in bed for four weeks is the best treatment.

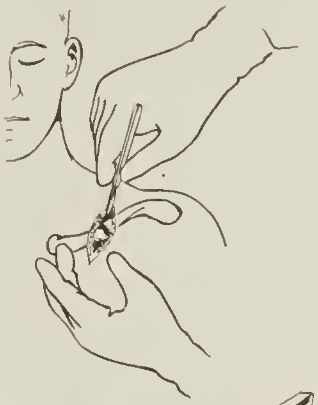
Scarring can be minimal if the incision is properly made over the fracture site in the natural line of skin cleavage rather than paralleling the curve of the clavicle as is usually done.

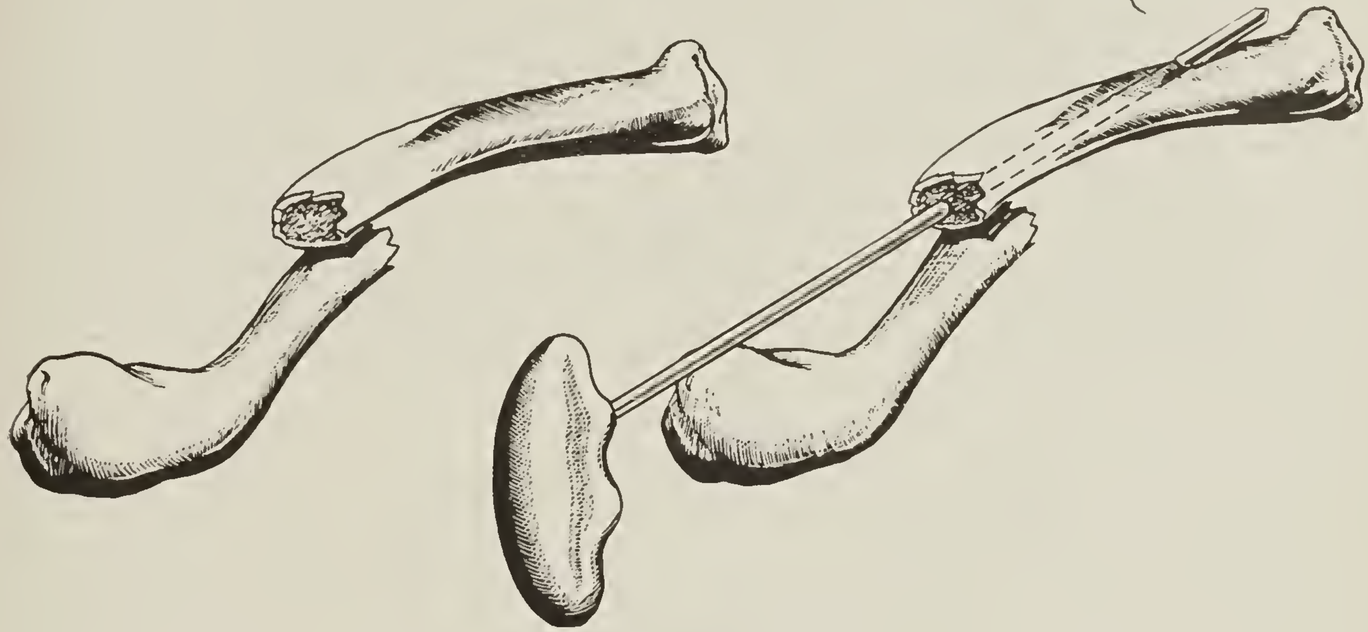
In operating upon the clavicle it must be borne in mind that there are very important underlying structures which must not be injured by accident or carelessness.

In our early experiences considerable difficulty was encountered in pinning the clavicle because of the problem of making a satisfactory "medullary canal" in each fragment. Both twist drills and Steinmann pins proved to be unsatisfactory for this purpose and it was for this particular fracture that the awl-reamer was designed and we now find the operation greatly simplified by its use.









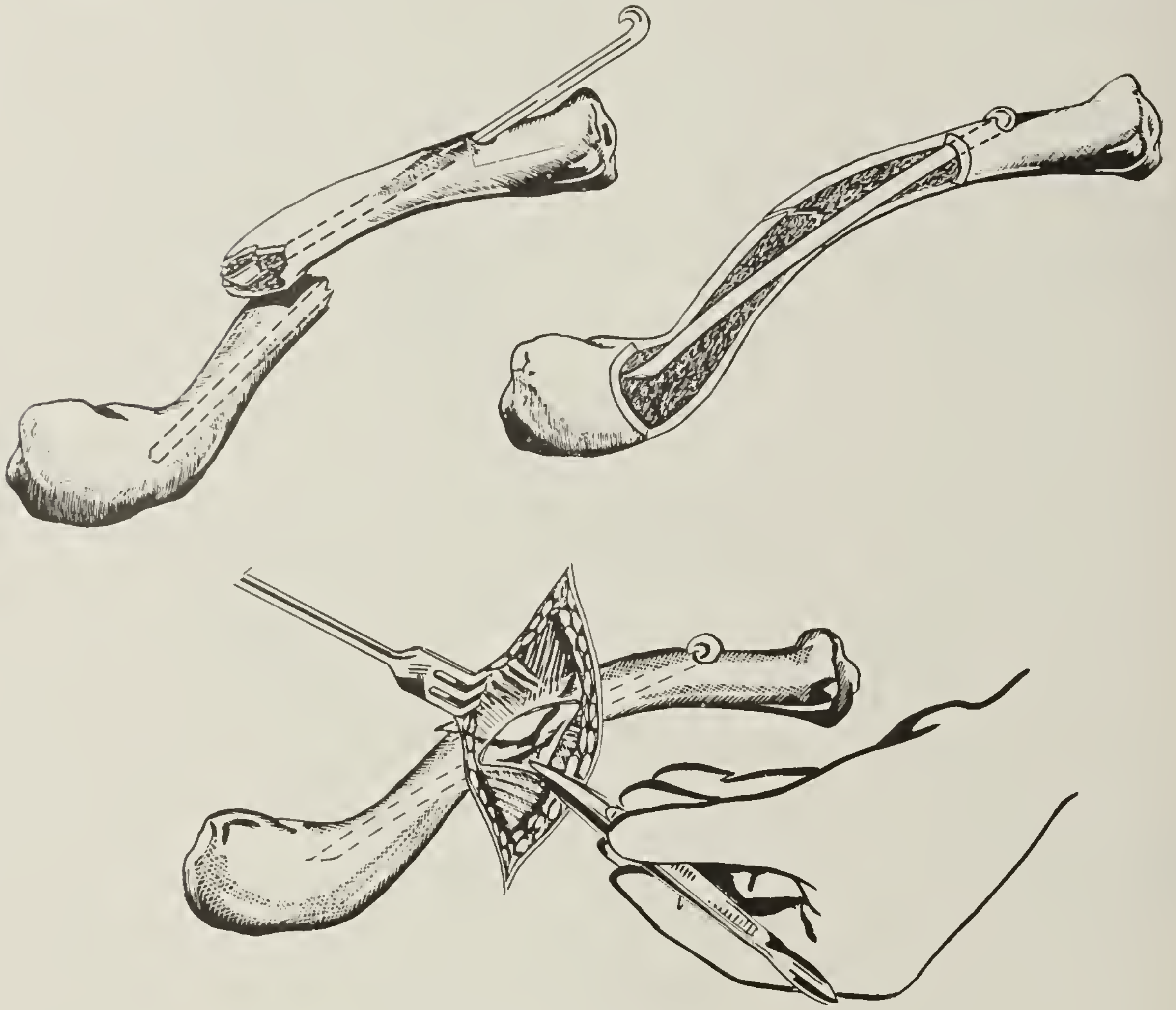
Technic

Position: The patient is placed in simple recumbency with the arm by the side, and a sandbag placed between the shoulder blades so as to elevate the affected shoulder. The patient is so placed upon the table that the affected shoulder is at the edge of the table. The correct position simplifies the use of the awl-reamer in drilling the longitudinal openings in the bone fragments.

Incision: A two-inch oblique incision is made directly over the fracture following the natural lines of cleavage of the skin. The skin margins are retracted and the fractured ends of the clavicle are exposed for a very short distance sub-periostially.

The medial fragment is attacked first. The point of the awl-reamer is placed in the mid-portion of the fracture surface of the medial fragment. An opening is drilled almost longitudinally, but slightly oblique, so that the point will emerge on the anterior surface of the clavicle about one and one half to two inches medial to the fracture. Occasionally the awl reamer will tend to bend to follow the contour of the clavicle, but with skillful manipulation it can be made to emerge on the anterior surface of the bone. The point of the instrument is felt beneath the skin, a small stab wound is made over the tip, this stab wound also being made obliquely in the natural cleavage line of the skin.

The awl-reamer used is 1/8 inch in diameter. The pin chosen is 3/32 inch in diameter so that it will pass easily through the opening which has thus been created. It should be at least three and one half inches in length to assure stable fixation in each fragment. Otherwise, the pin will tend to migrate out of the bone.



Technic (con'd)

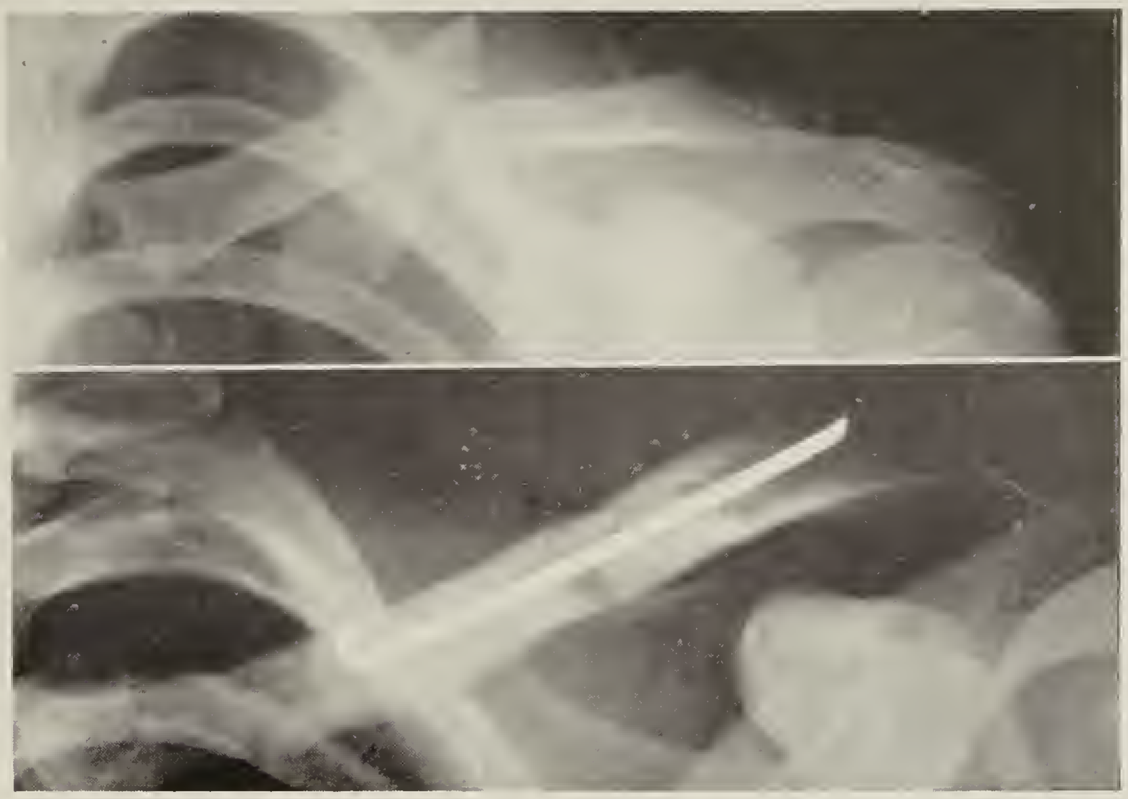
The groove in the point of the awl-reamer can be used as a grooved-director to guide the point of the pin into the bone opening. This is an important point because the bone opening can be difficult to find.

In a similar manner a longitudinal canal is made in the lateral fragment. This canal should extend at least two inches in depth or until the instrument emerges through the posterior curve of the bone. Secure fixation in this fragment lessens tendency for the pin to migrate backward.

The fracture is realigned, the point of the pin is made to enter the new opening in the lateral fragment and the pin is driven home. Fixation is usually found to be thoroughly stable.

Fractures of the clavicle are often comminuted, there being a triangular fragment on the inferior aspect. This fragment should not be wired into position but simply replaced. If care has been exercised in exposing the ends of the bone sub-periostially a very excellent fascial tube remains which can be sutured over the clavicle to hold the fragment snugly in position.

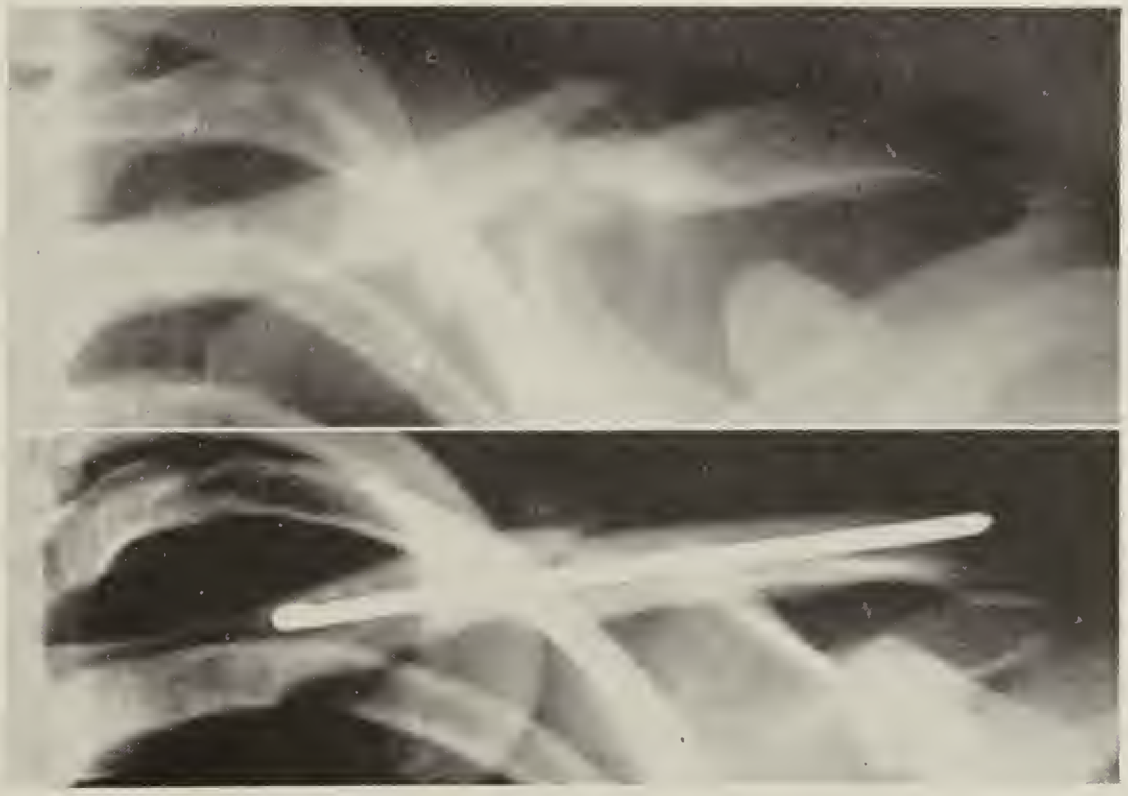
No form of external immobilization is necessary and full function can be permitted immediately.



Case-Grams

ABOVE: Girl, age 14, Simple fracture of clavicle. Immediate function after pinning.

BELOW: Boy, age 17. Comminuted fracture of clavicle. Pin produced stable fixation and immediate function permitted. Wiring is rarely advisable in comminuted fractures of the clavicle.



Which filter-tip cigarette is the most effective?

In continuing and repeated impartial scientific tests, smoke from the new KENT consistently proves to have much less nicotine and tar than smoke from any other filter cigarette—old or new.

The reason is KENT's exclusive Micronite Filter.

This new filter is made of a filtering material so efficient it has been used to purify the air in atomic energy plants of microscopic impurities.

Adapted for use as a cigarette filter, it removes nicotine and tar particles as small as 2/10 of a micron.

And yet KENT's Micronite Filter, which removes a greater percentage of nicotine and tar than any other filter cigarette, lets through the full flavor of KENT's fine tobaccos.

Because so much evidence indicates KENT is the most effective filter-tip cigarette, shouldn't it be the choice of those who want the minimum of nicotine and tar in their cigarette smoke?

Kent with the exclusive Micronite Filter

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TWENTY
KENT
CIGARETTES
WITH THE MICRONITE FILTER

BOOK SECTION

INSTALLMENT 16

Atlas of Rush Pin Technics

LESLIE V. RUSH, M.D.
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Rush Memorial Hospital
Meridian, Miss.

This is the sixteenth of a series of monthly installments to be published in *The Mississippi Doctor* during the coming year. The monograph on fracture surgery will be available in bound form in 1955.

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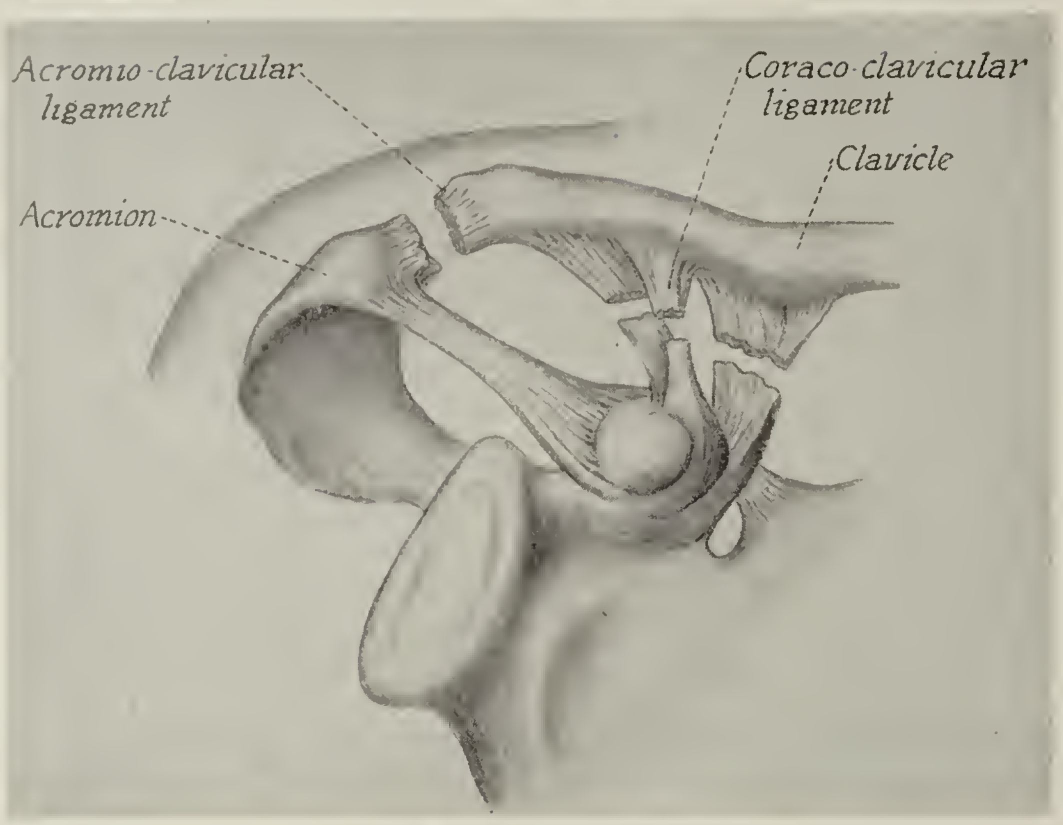


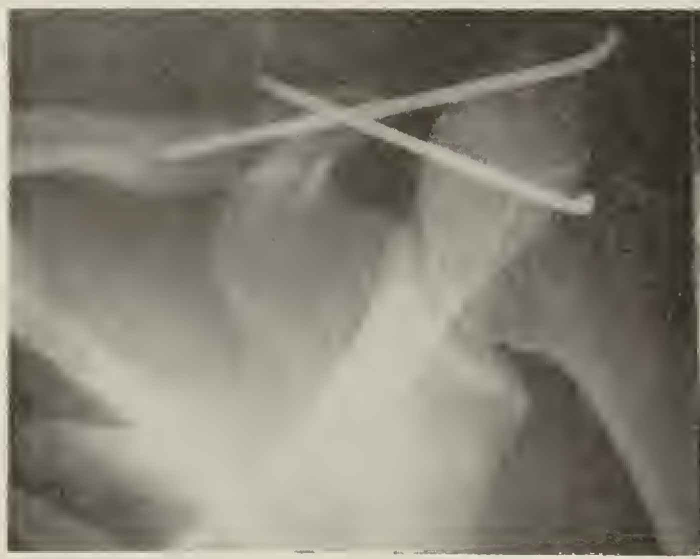
When the ligaments are torn, stability is lost. Pinning is rarely advisable here because this can be a surgical snare.

Acromio-Clavicular Separation

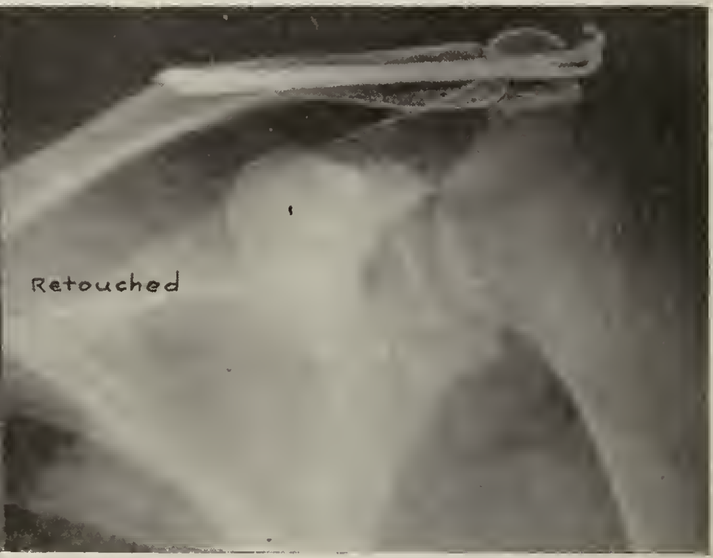
Normally the acromio-clavicular joint enjoys motion in every direction. Pins which transfix the joint tend to loosen and migrate. The bone in this region is thin and friable.

Once the pins loosen in their purchase enough to allow the clavicle to ride upward even slightly, the acromion acts as a wedge to push the clavicle further upward.

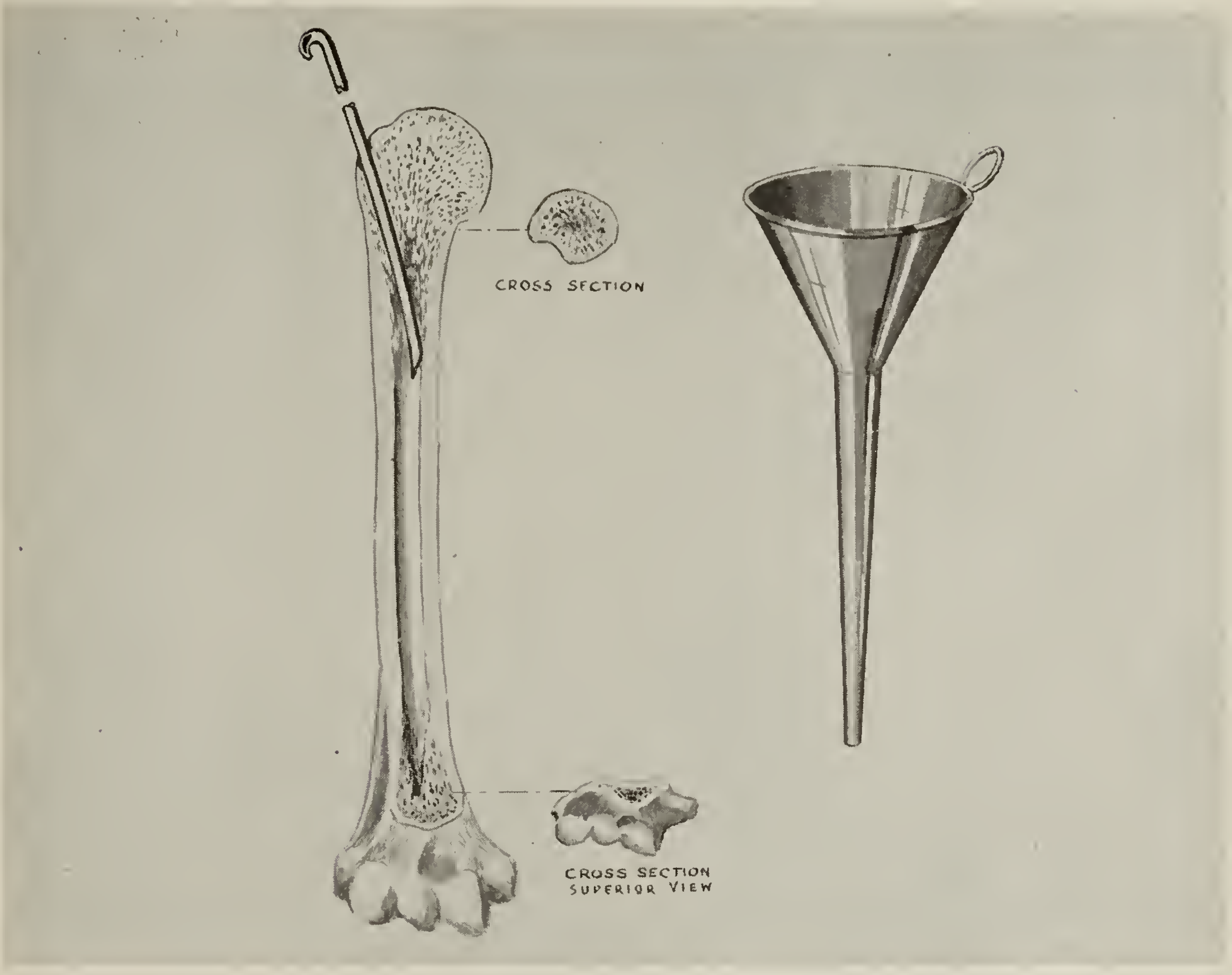
Pinning is rarely advisable here. If it is done it should be as an open procedure, under direct vision.



BAD RESULT: Male, age 17. Open reduction. Pins soon loosened and migrated backwards. Had to be removed.



GOOD RESULT: Female, age 37. Open reduction, excellent fixation resulted. Pins did not loosen.



The marrow canal of the humerus is funnel shaped. Its successful pinning is influenced by many factors.

26

THE HUMERUS

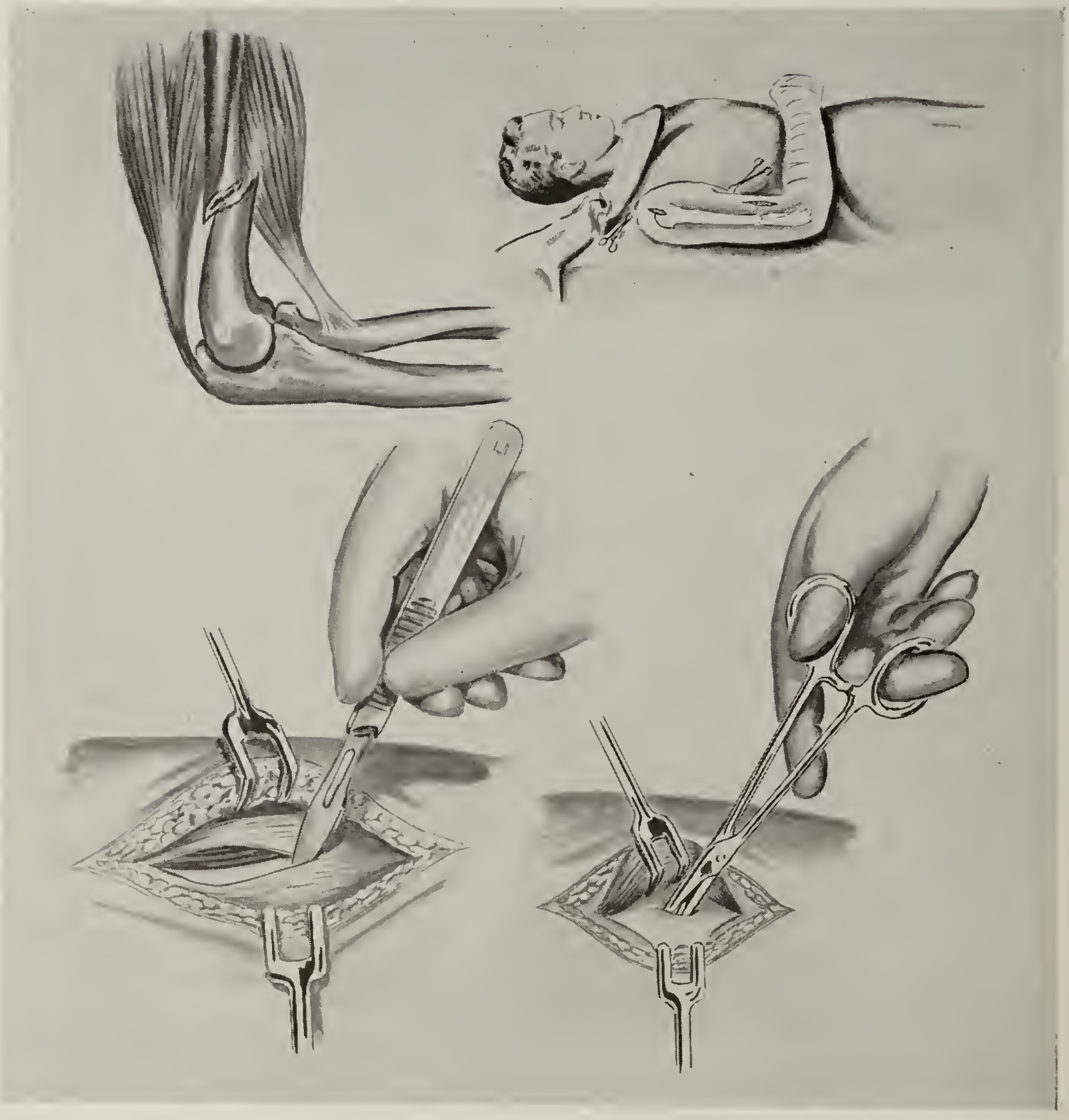
With a few exceptions, the entire humerus is a beautiful field for medullary pinning. Semi-open reduction is the general rule. In recent cases, it is rarely necessary to endanger nerves or cripple the blood supply of the bone by wide dissection.

This region offers definite problems. Atrophy of the deltoid muscle and periarticular adhesions of the shoulder occur very rapidly if function of the shoulder is arrested.

Proper utilization of dynamic forces at the different levels is essential if non-union is to be avoided. The important factors are distraction, tendency to angulation or rotary stress. They are most conspicuous at the level just below the deltoid insertion. Also, radial nerve palsy can be a disagreeable complication.

For the shaft, the pin used is 3/16 inch in diameter. It is used straight or preshaped into a slight curve. The point of entrance is the supero-lateral surface of the tuberosity.

Most, but not all cases, do better without external fixation. Secure motion of the shoulder and elbow early. Late vigorous attempts to mobilize these joints can fracture the new callus and precipitate non-union. Yet, at times, a light hanging cast or sling can be used to good advantage.



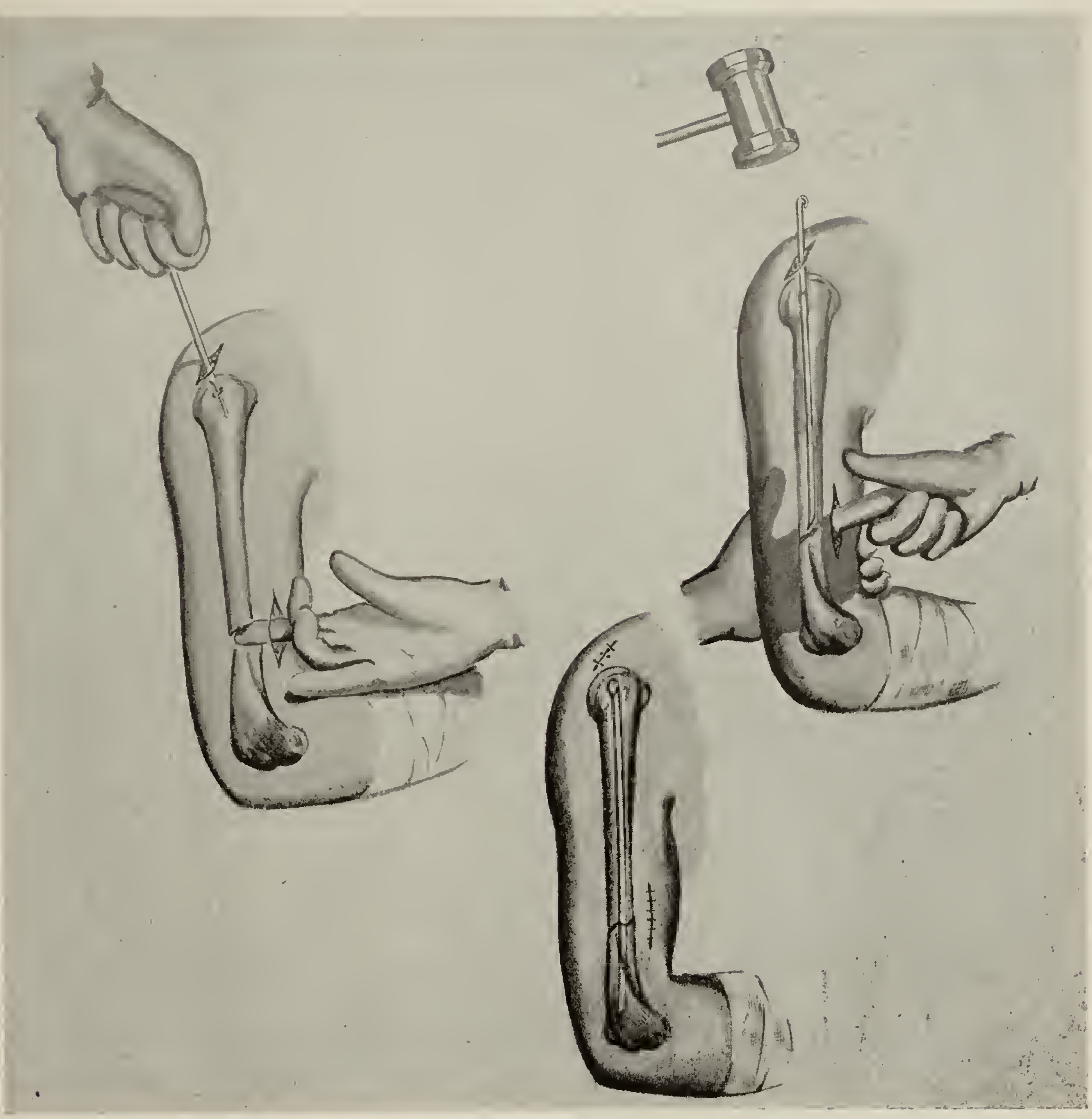
Lower Shaft

The operation is done as a semi-open procedure. The arm is draped so that it can be manipulated.

Incision: A very slight incision, about one and one half inches, is necessary. This is made at the level of the fracture, on the antero-lateral surface of the arm, just lateral to the belly of the biceps muscle. It extends through the fascia only. The biceps is retracted medially and an artery forceps is pushed through the brachialis muscle to enter the hematoma. The opening is stretched to admit one examining finger which will guide reduction of the fracture.

By this procedure the musculo-spiral nerve is not endangered.

A small incision is made over the tuberosity which can be indentified by palpation. This incision extends through the fascia.



Lower Shaft (con'd)

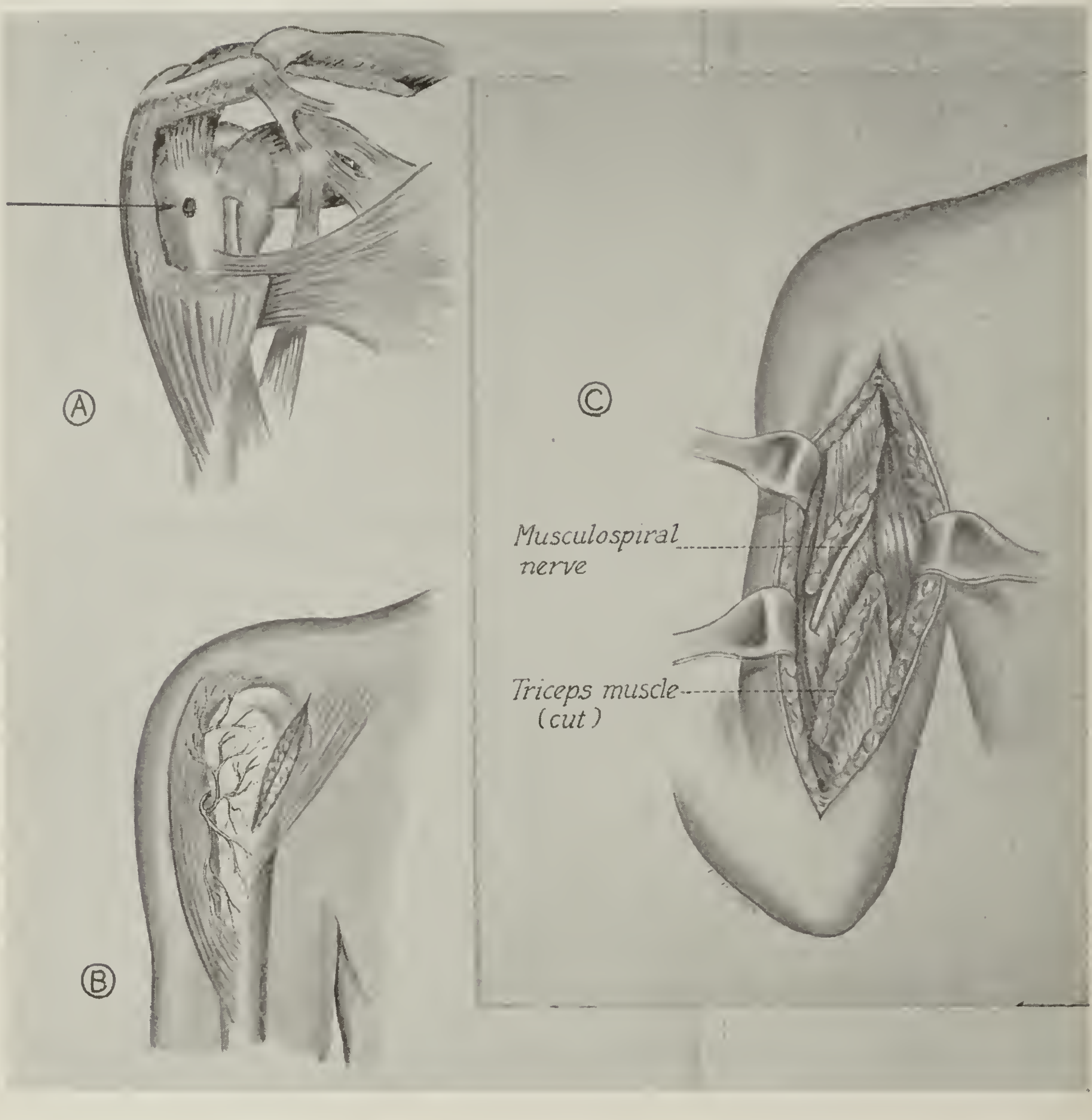
The awl-reamer is pushed through the fibers of the deltoid to engage the cortex of the tuberosity, at first vertically. As the cortex is penetrated the direction of the instrument is changed to approximate more closely the long axis of the bone.

During this procedure the surgeon keeps one index finger in contact with the fracture surface of the proximal fragment for orientation.

The pin is driven to the fracture line. The arm is then manipulated with one palpating finger within the wound to guide the reduction and the pin is driven home.

For this fracture a straight pin is used 3/16 inch in diameter and of sufficient length to extend well into the distal fragment. Too long a pin will cause distraction or extend high enough at the shoulder to interfere with motion.

If a curved pin is used the point must be carefully driven into the external condyle in such fashion as to avoid angulation.

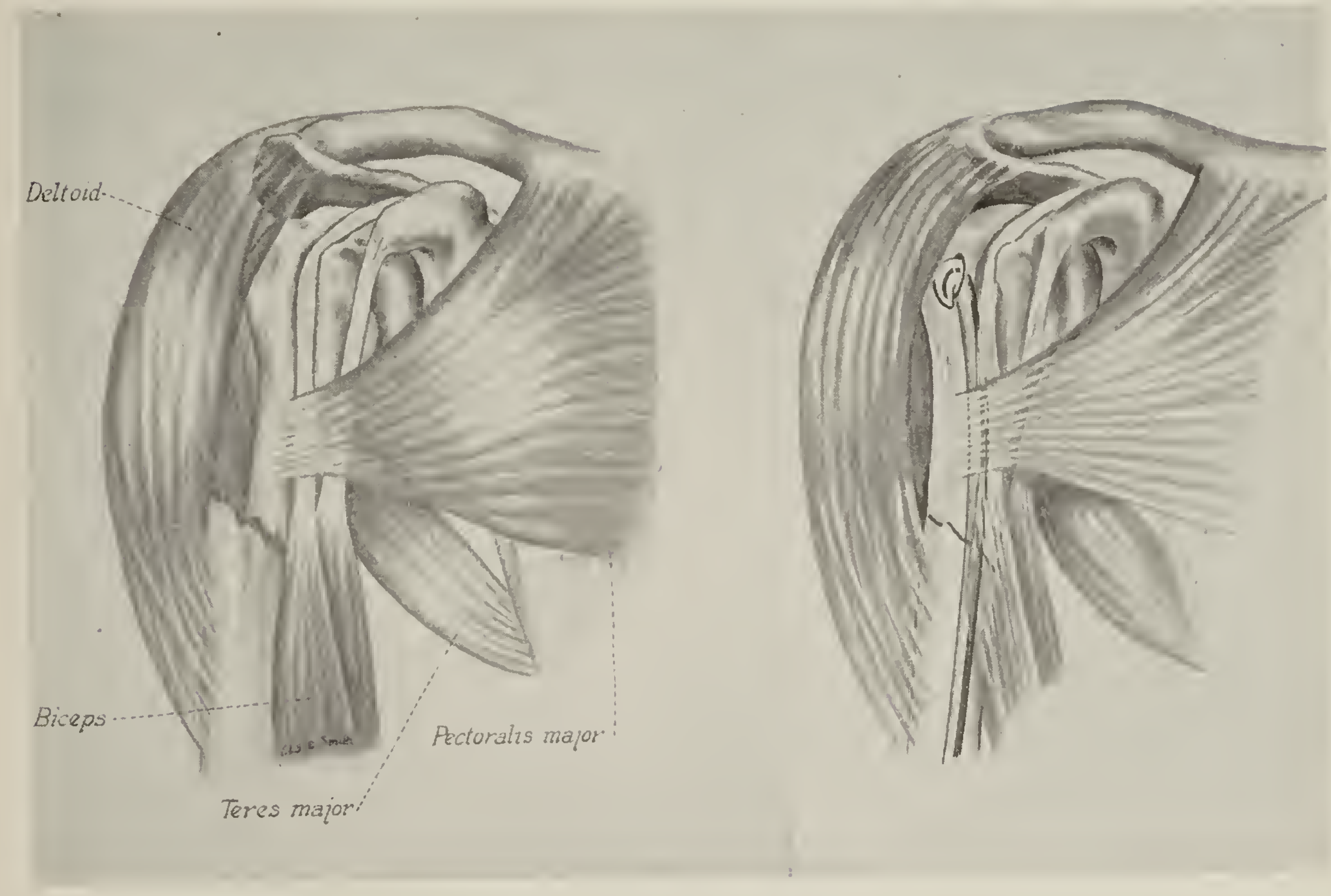


Anatomy

A. The rotator cuff need not be injured or compromised by the insertion of the pin. The supero-lateral surface of the greater tuberosity is the proper area for insertion. This point is below the insertion of the supraspinatus and lies between the insertions of the internal and external rotators.

B. Nerve supply of deltoid muscle must be safeguarded. Incision for reduction should be anterior at the delto-pectoral groove. Lateral stab wounds for insertion of pin should be made high upon the muscle.

C. The Radial Nerve spirals around the shaft of the bone and must be carefully protected in open reduction. Semi-open reduction is indicated in most recent fractures and eliminates the danger to this nerve.



Above Deltoid Insertion

Healing is usually good at this level. The strong muscular envelope gives good contact compression to stimulate healing.

At this level the deltoid muscle is attached to the lower fragment which it pulls laterally. The proximal fragment displaces medially from the pectoralis major pull.

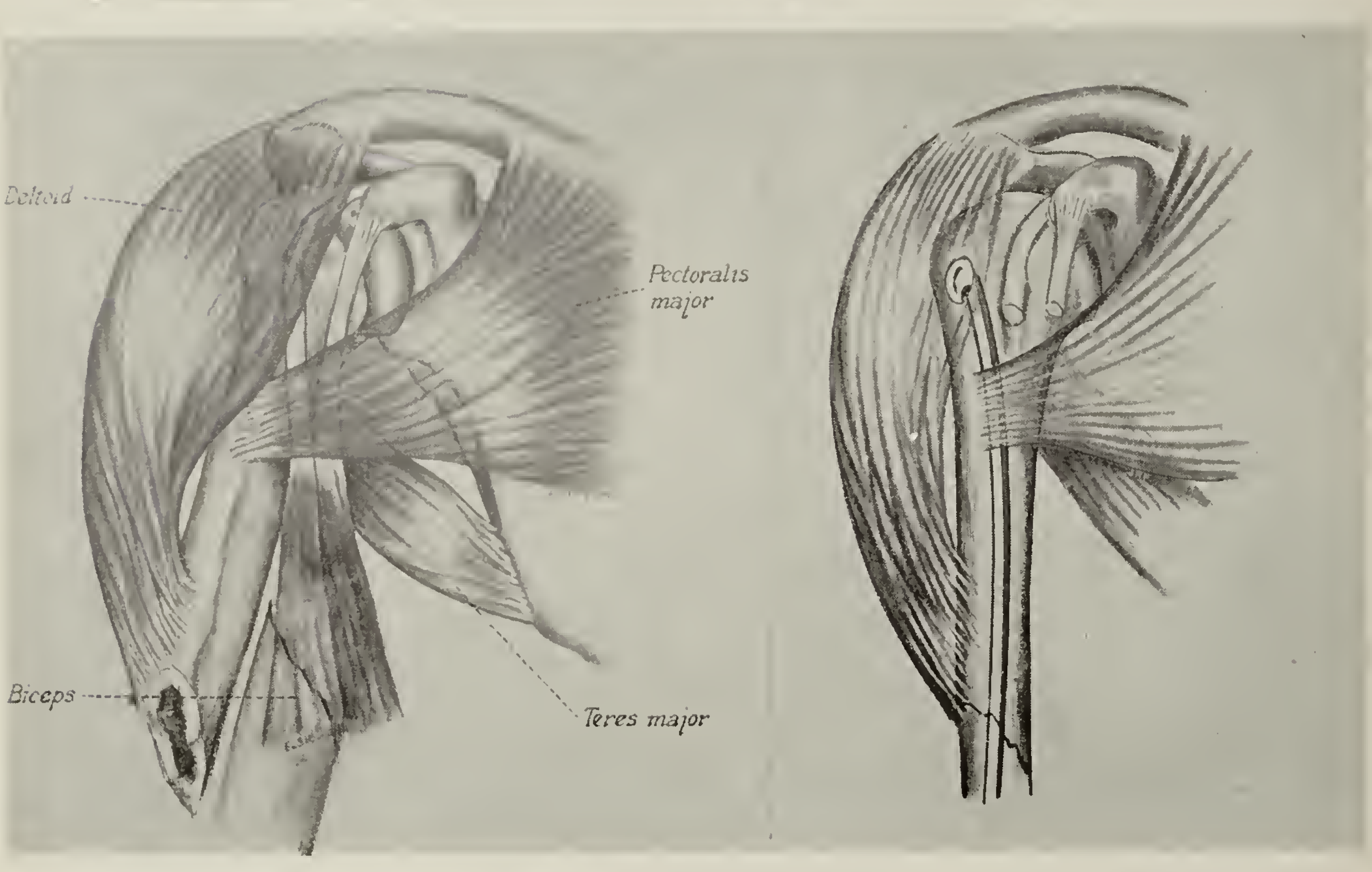
This is usually pinned as a semi-open procedure. The incision is made over the fracture at the anterior border of the deltoid.

The pin is inserted as just described for fractures of the lower third. One must be cautious not to pass the pin too obliquely in the short proximal fragment. This can cause angulation.

As the pin traverses the fracture it resists the pull of the pectoralis major muscle by pulling the upper fragment outward. Similarly, it resists the pull of the deltoid by forcing the distal fragment medially.

If the fracture is irregular rotation is not to be feared and no external immobilization is necessary. If in doubt, use a sling or light hanging cast.

The use of a curved pin, offsetting the point toward the lateral condyle, can be an excellent safeguard against rotation. This should be used only if the proximal fragment is long enough to afford good three-point pressure.



Below Deltoid Insertion

This is the danger level for non-union. The deltoid muscle pulls the upper fragment outward. These fractures are nearly always oblique and the direction of the obliquity is extremely important.

When the direction of the fracture line is as shown above, the problem is simple. The pin is applied just as shown on the preceding page, for fractures above the deltoid insertion.

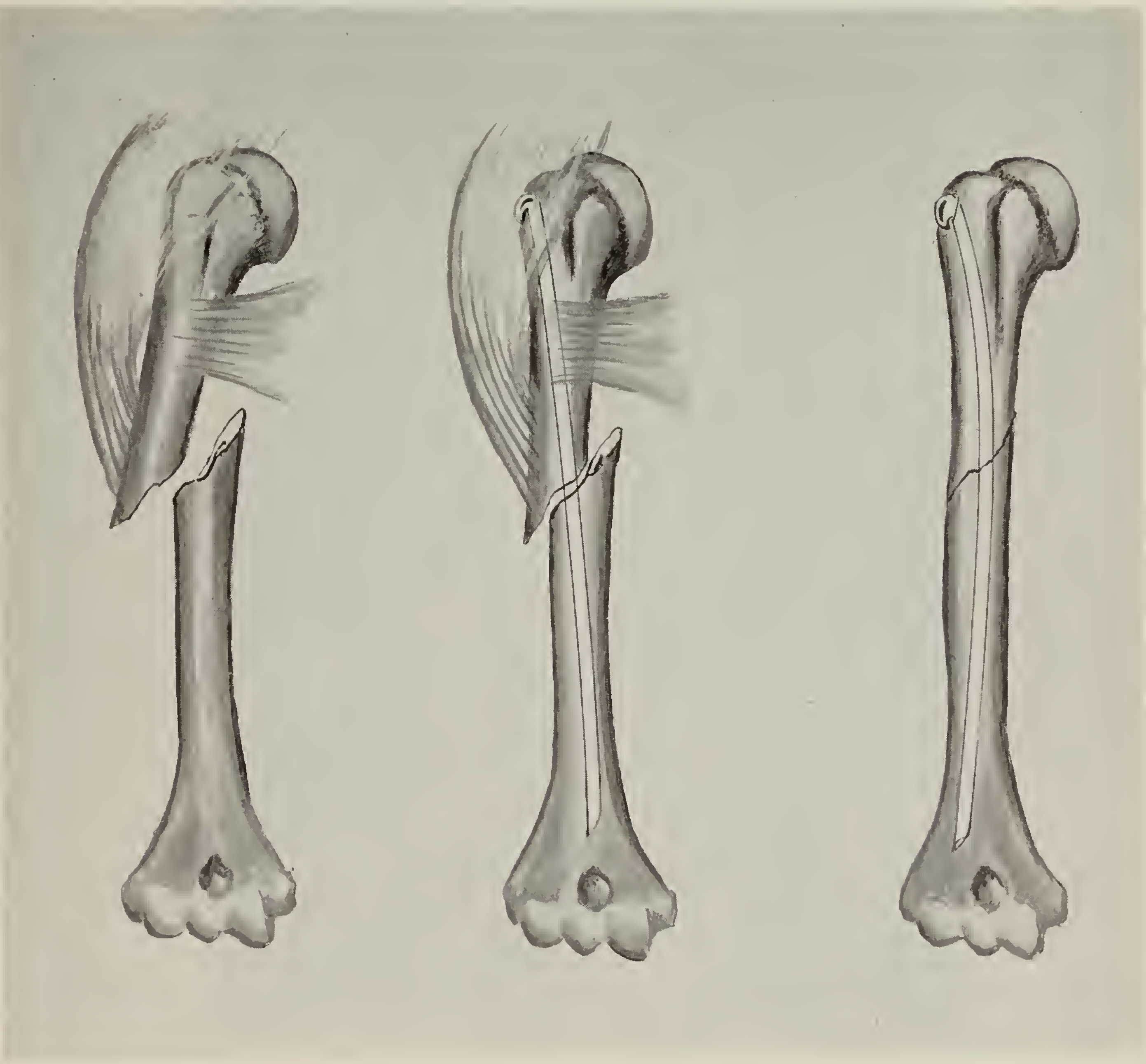
After the pin has been placed, the continuous pull of the deltoid compresses the fracture surfaces to give excellent fixation and stimulate healing.

Unfortunately, this is not the usual direction of the fracture line. It generally runs in the opposite direction to complicate our problem.

At this level it is important to pay meticulus attention to the stability of fixation. When the fracture is well reduced and stably transfixed rapid healing usually occurs.

In the type fracture shown on the opposite page motion at the fracture site frequently develops insidiously. First there is loss of compression of the fracture surfaces by the sheer force of the deltoid pull, then follows distraction. Add to this, possibilities of the pin loosening somewhat in the bone, plus rotary stress, and a nonunion can be precipitated.

Barrel stave grafts are indicated if healing is delayed.



Below Deltoid Insertion (con'd)

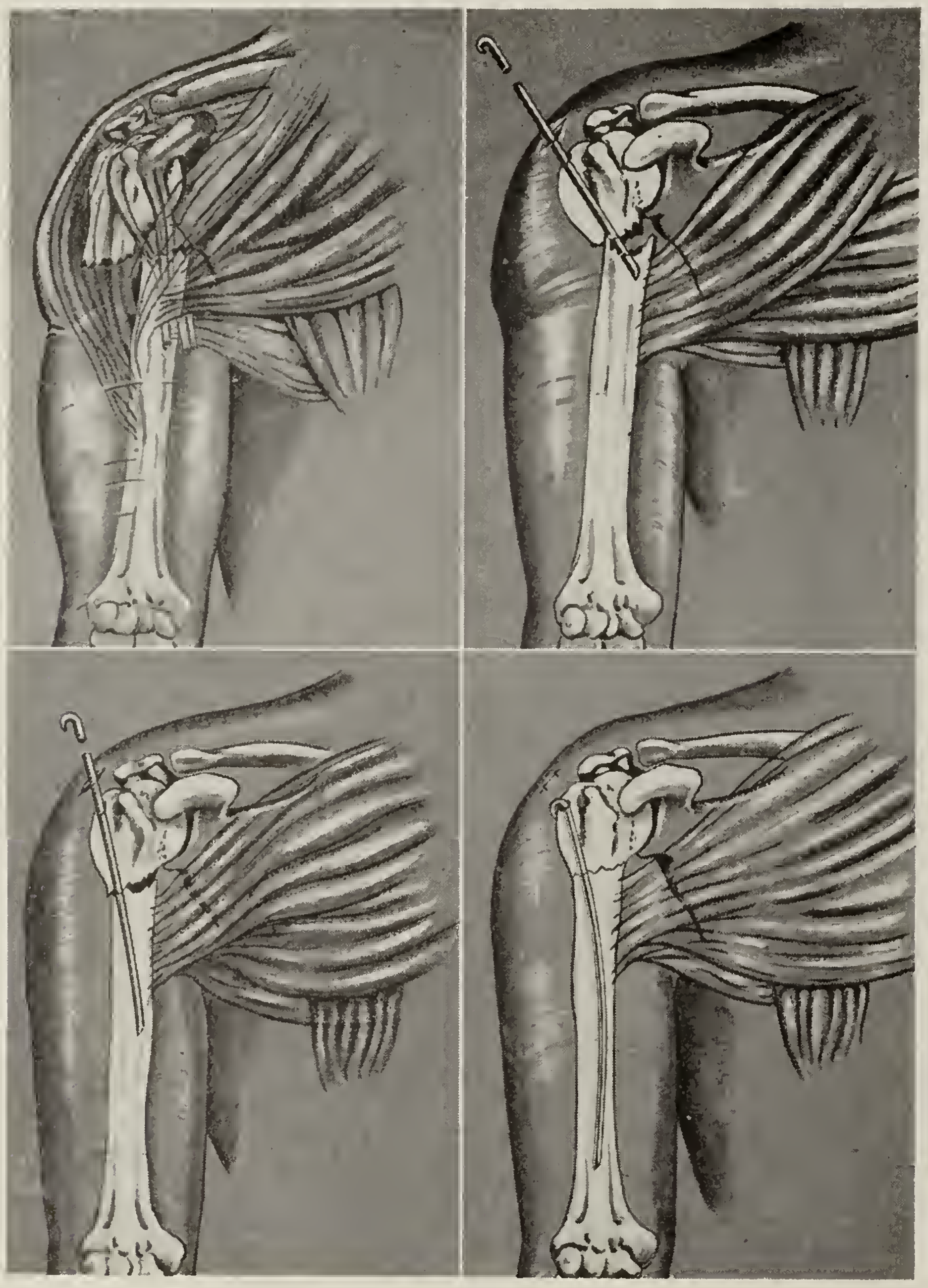
Observe that here the fracture line runs in the opposite direction. The pull of the deltoid produces wide distraction.

After the application of a straight pin distraction still occurs. Fixation is not stable and rotation of the fragment can occur.

The proper application of a curved pin takes care of the situation very well.

The pin enters the proximal fragment through the side of the tuberosity at a slightly oblique angle. A straight pin would angulate the fragment, but this is counteracted by the curve of the pin. As the curved pin is driven firmly into the distal fragment, the fracture line closes to give good fixation and compression.

Tendency to rotation is prevented. The proximal fragment is stably transfixed by the three-point pressure of the pin having entered from the side. The curved pin with the point offset laterally against the cortex, or into the external condyle, stabilizes the distal fragment.



Neck: Closed Pinning

Often indicated in the elderly. It can be very simple or very difficult.

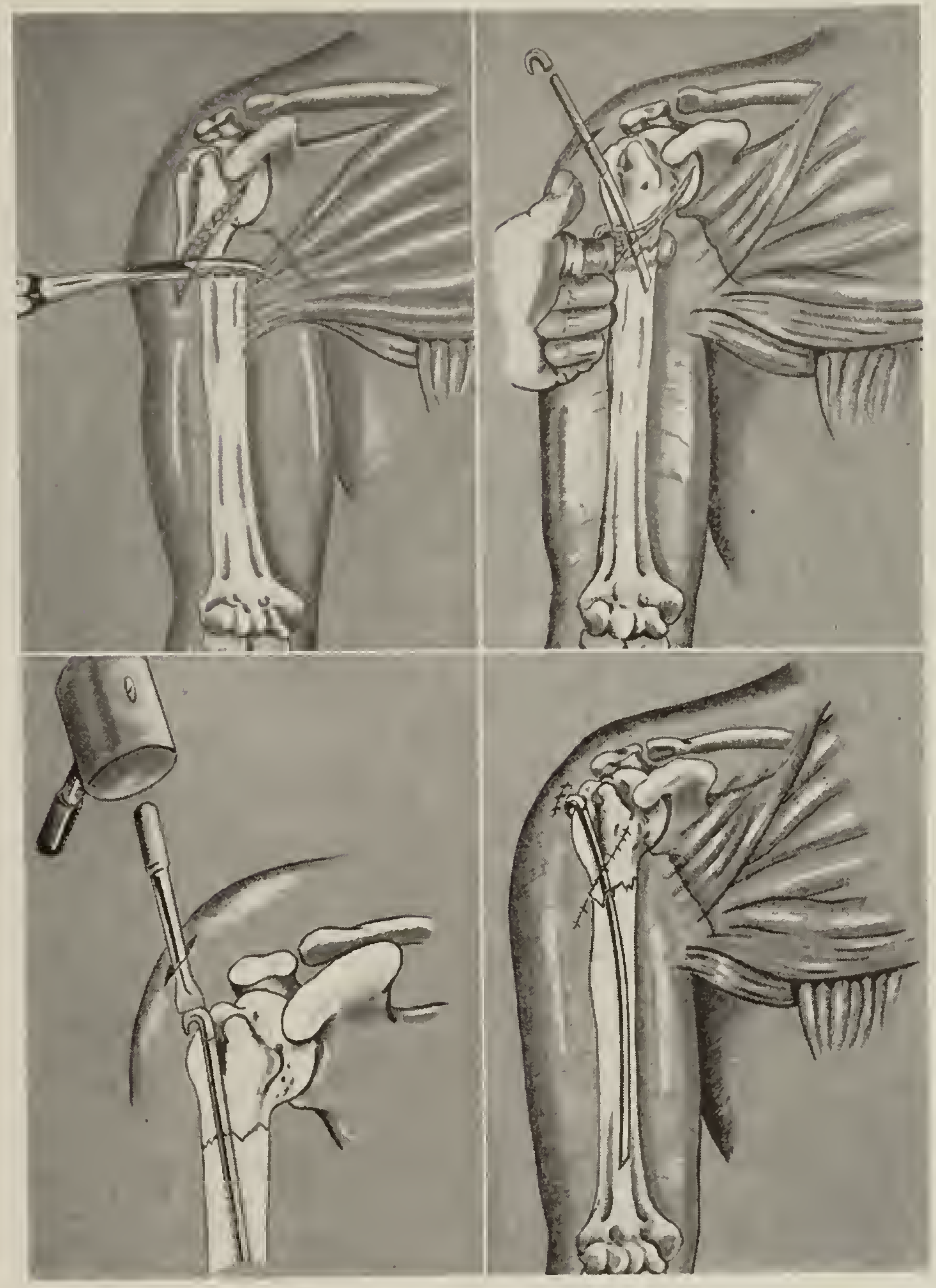
Upper fragment pulled outward by supraspinatus. Pectoralis major pulls shaft medially. This is continuous and can cause delayed deformity if fracture is not pinned.

TECHNIC:

Reduce fracture. Choose pin 1/8 or 3/16 inch in diameter. Introduce as before but be sure direction of pin is in axial line of upper fragment.

Keep sled runner of point directed toward far cortex to guide it down shaft. Set head, close stab wound. No external immobilization is applied.

Pin exerts three-point pressure in bone to resist muscle pull.



Neck: Semi-Open Pinning

When closed pinning is not practical make a small anterior incision. Wide dissection is seldom necessary. In comminuted fractures it can do infinite harm by breaking up the fascial envelope about the fragments.

The incision need admit only a manipulating finger or small bone skid to manuever the fragments into position.

It is simpler to delay introducing the pin until the surgeon is well oriented by palpation. This can prevent angulating the proximal fragment.

When the tuberosity is comminuted, it may be necessary to pass the pin through the head of the bone. This is often also true in certain fractures of children. In such cases, leave the head high so that it can be palpated beneath the skin after swelling subsides, and remove the pin as soon as healing permits.

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BOOK SECTION

INSTALLMENT 17

Atlas of Rush Pin Technics

LESLIE V. RUSH, M.D.
Department of Surgery
Rush Memorial Hospital
Meridian, Miss.

This is the seventeenth of a series of monthly installments to be published in *The Mississippi Doctor* during the coming year. The monograph on fracture surgery will be available in bound form in 1955.

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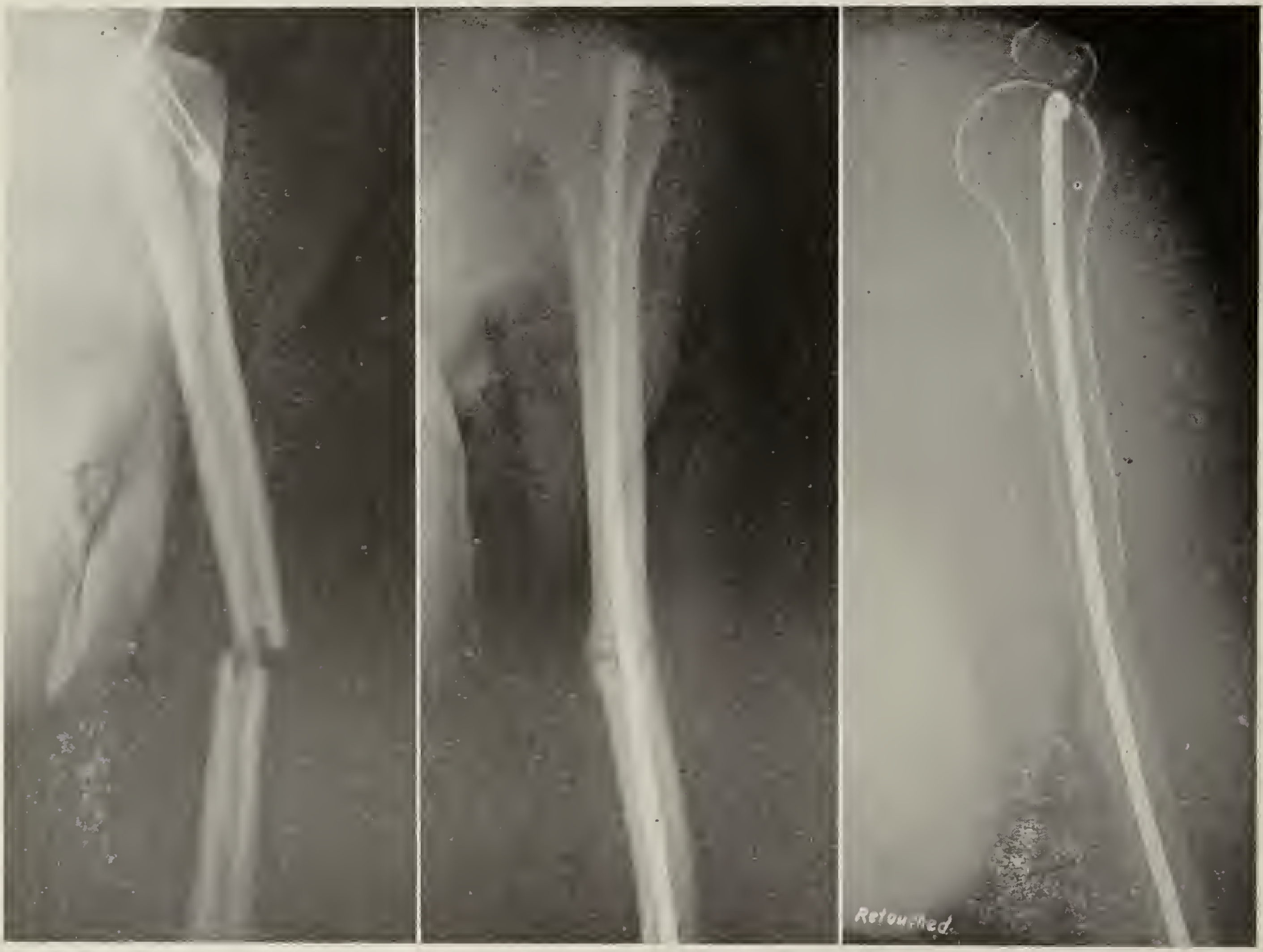


27

CASE-GRAMS: HUMERUS

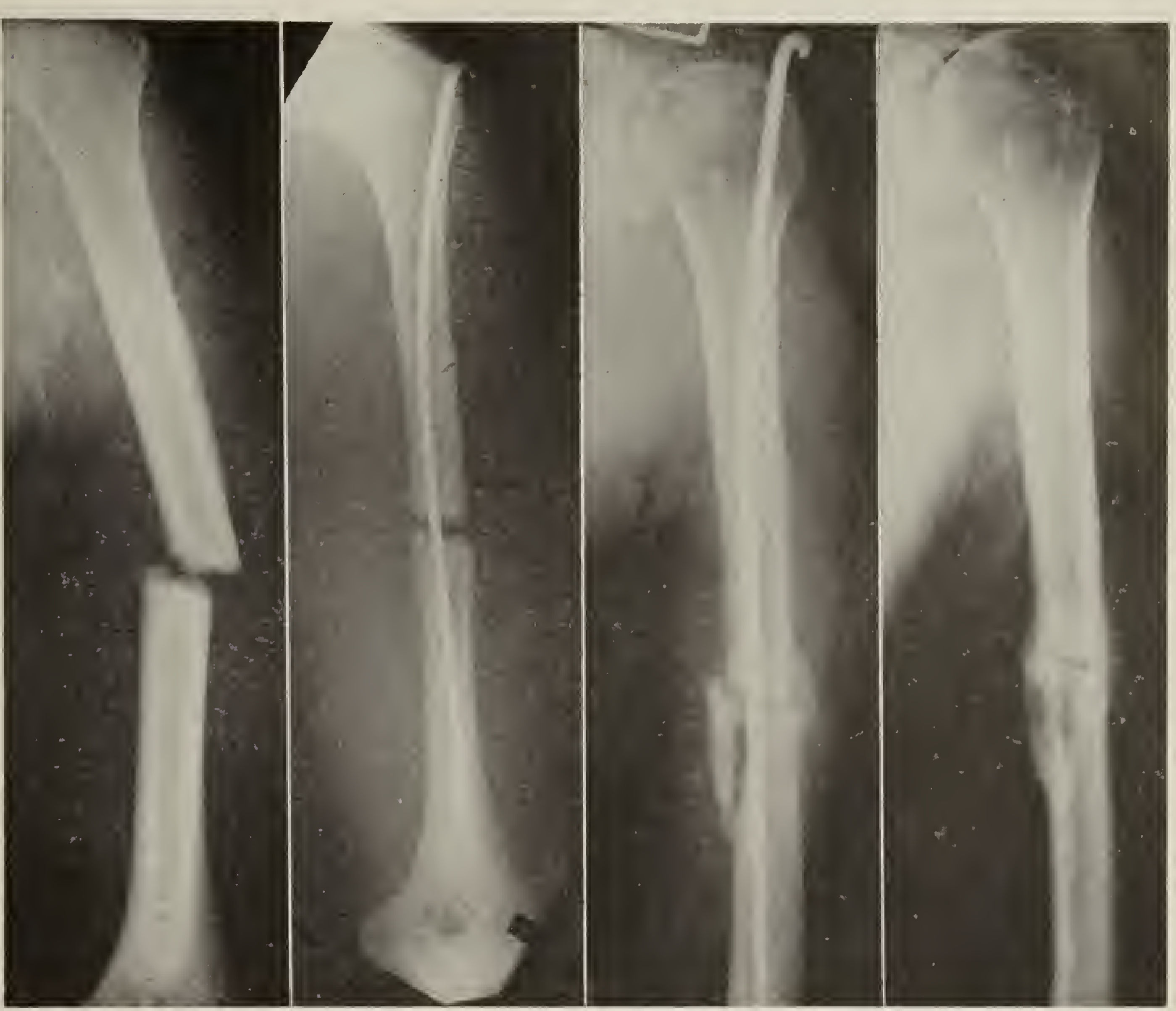
Ideal for Pinning

Fracture line irregular, fragments long, medullary canal small.

Closed pinning, fixation thoroughly stable with no external fixation. Immediate function. Healing complete and pin removed at three months.

Female, age 29. This patient is markedly obese and pinning was done under fluoroscope. *The fluoroscope should be avoided.* It is not worth the risk. Semi-open reduction would have been better in this case.

Fixation was good here because the pin secured excellent purchase on both fragments and rotation could not occur because of the irregular fracture surfaces.



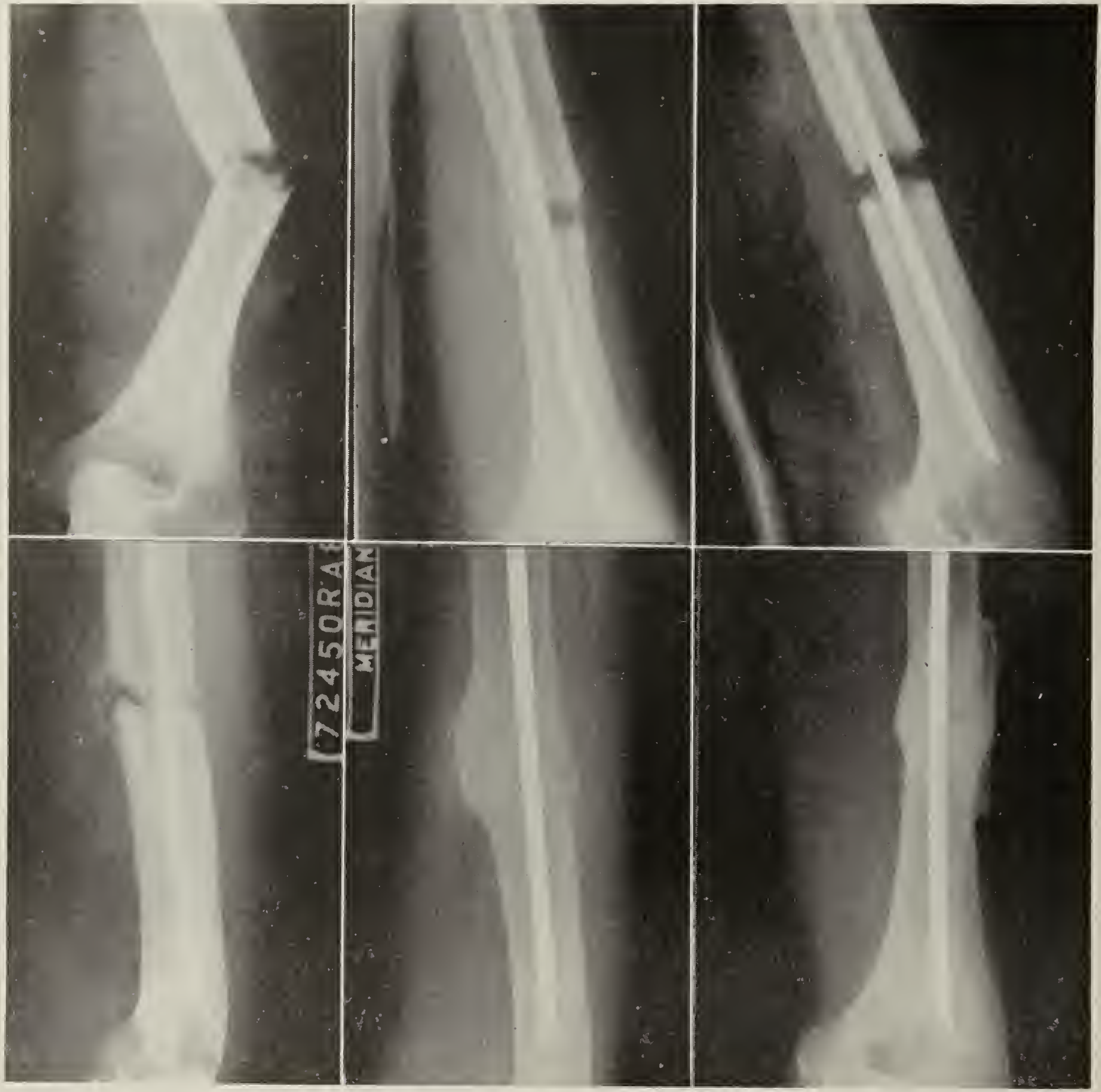
Function Overcomes Distraction

Note in the pictures above that the pin at first caused marked distraction. This was due to the fact that the pin did not enter deeply into the cancellous bone above the condyles, and because of poor muscle tone.

With the resumption of muscular activity the distraction was overcome causing the head of the pin to migrate upward.

Male, age 58. Compound fracture of humerus with severe avulsion of muscle tissue and skin. Arm was caught between a chain belt and sprocket wheel which produced rupture of the biceps muscle and avulsion of the deltoid insertion.

Immediate débridement with soft tissue reconstruction and pinning. K E S dressing applied until soft tissue healing had occurred. Fixation was stable. At three months healing was secure and pin removed.



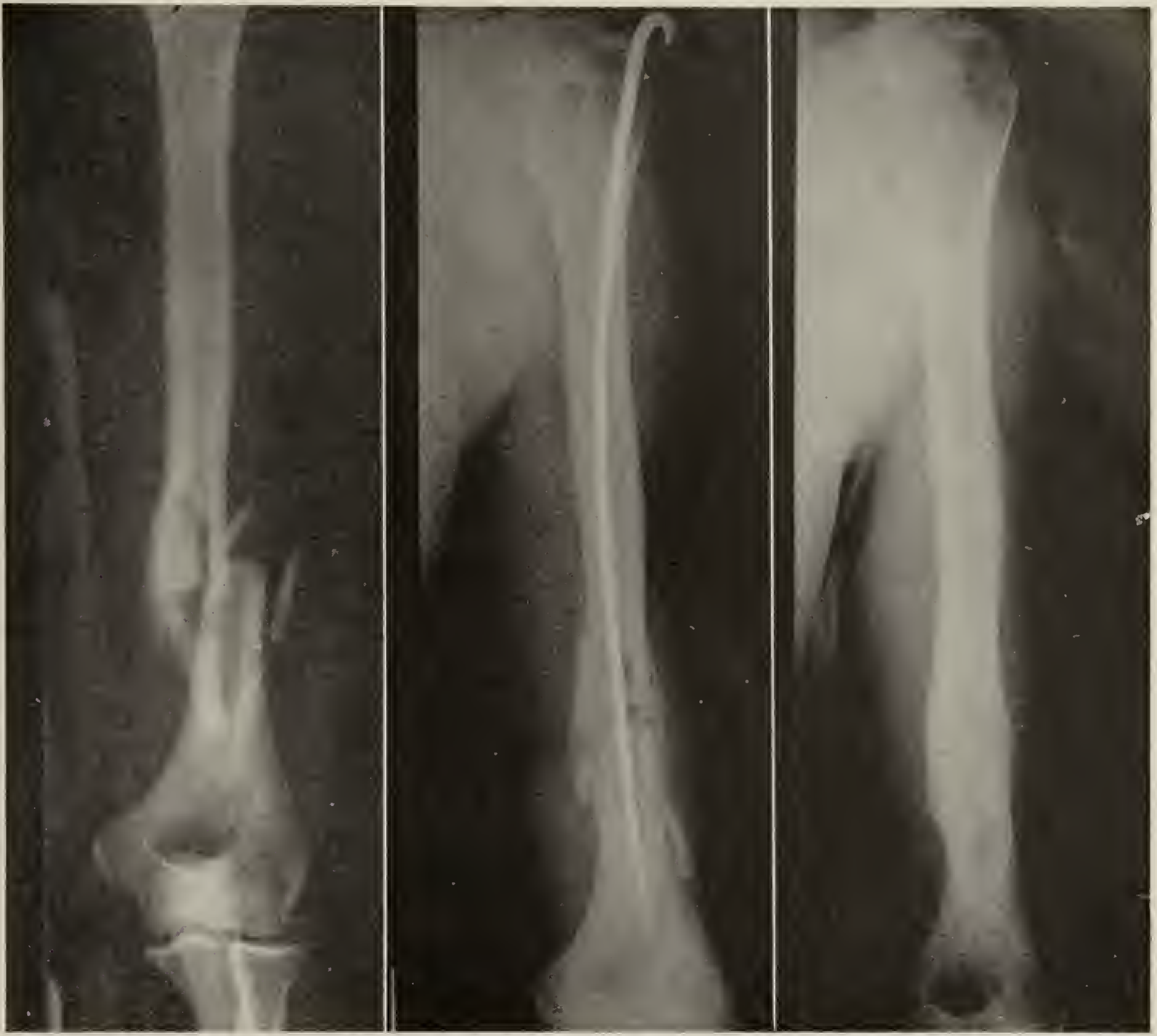
Distraction Non-Union: Bone Graft

Distraction occurred because the pin was too long and because of loss of muscle tone from violent soft tissue injury. Even the weight of a K E S dressing contributed to distraction. "Making a muscle" overcame the distraction eventually but non-union occurred.

Male, age 33. Compound fracture of the humerus with severe mangling of the soft tissues of the upper arm. Immediate débridement with soft tissue reconstruction and pinning of the humerus using a 3/16 inch pin. K E S dressing applied.

Very marked distraction occurred. At three weeks the K E S dressing was removed and active muscular exercises begun. Observe how the fracture interval closed as the result of muscular activity.

Despite this, however, bone graft became necessary at eight months. Barrel-stave grafts from the ilium applied without disturbing the fibrous union or the pin. No external immobilization. Good healing, pin removed at seventeen months.



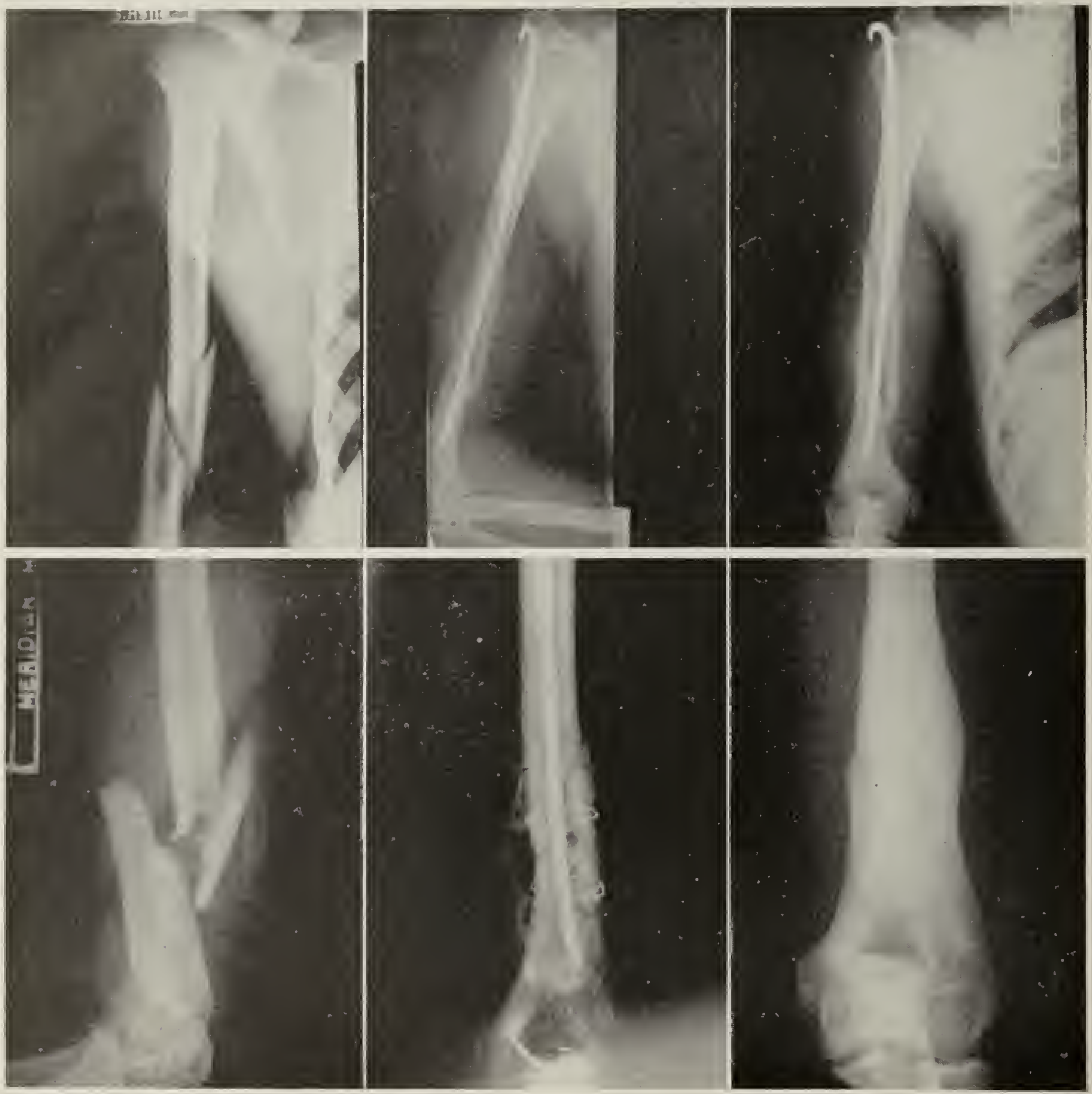
Comminuted Yet Stable

This case treated by semi-open reduction. Fixation stable from pin alone. Complete healing at five months.

Male, age 23. Fixed by pin three sixteenths inch diameter. Despite the severe communication and very short medullary canal in the distal fragment fixation was relatively stable. K E S dressing was worn ten days, then active motion permitted.

The head of the pin was too prominent and limited shoulder motion slightly. At six weeks elbow flexion was normal, extension limited ten degrees.

Circular wires were not necessary here because the main fragments were in contact and telescoping could not occur. In this region the comminuted fragments are displaced very little by muscle pull.

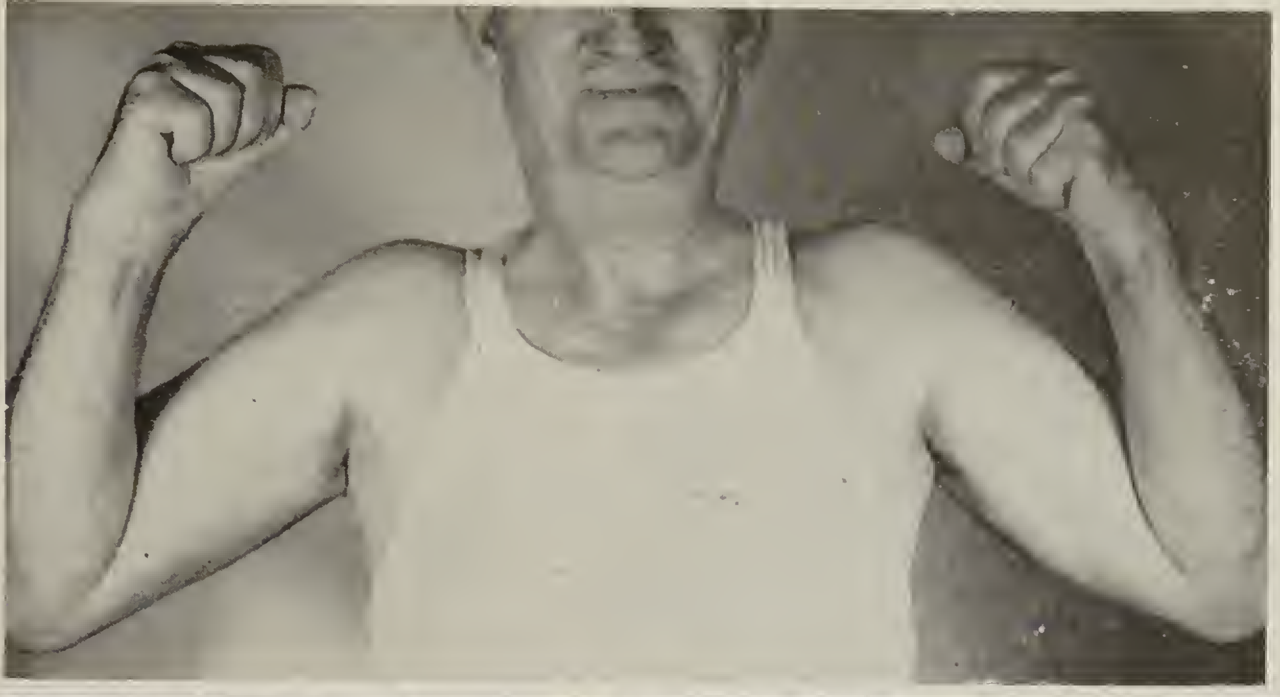


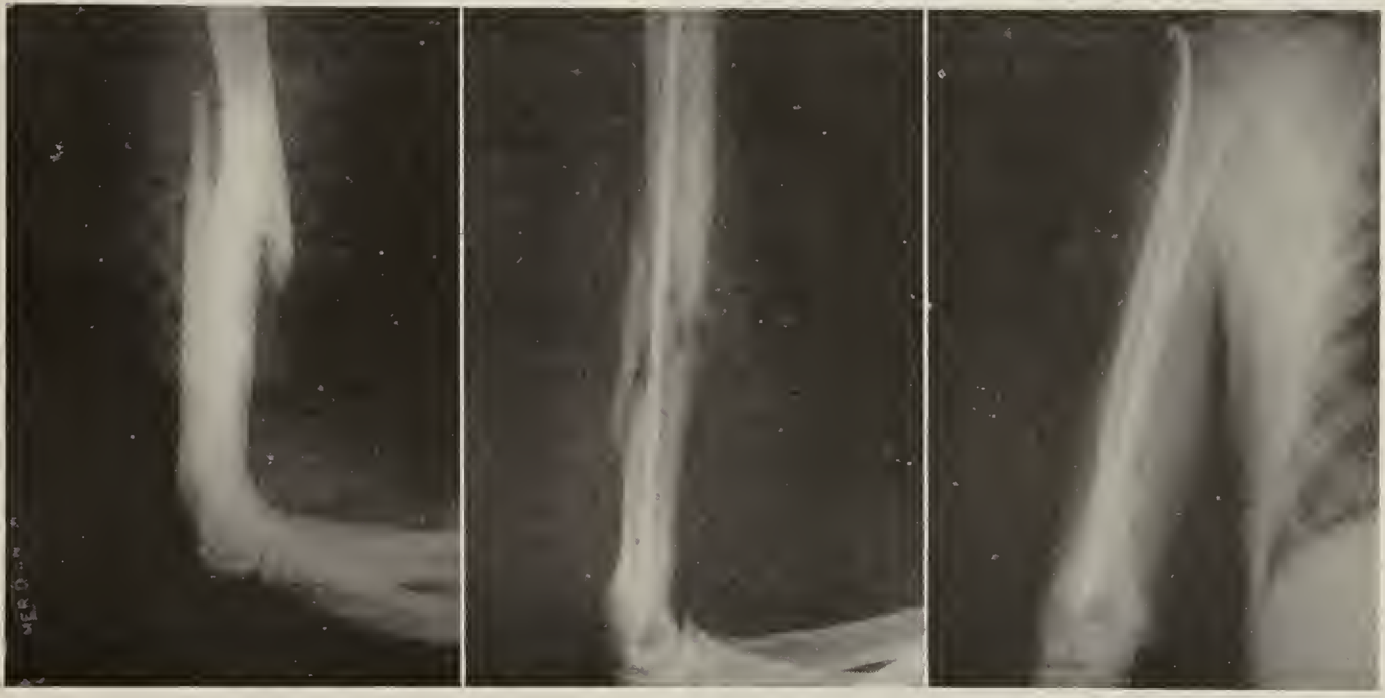
Are Wires Necessary?

In the lower third circular wires are not often necessary in comminuted fractures when the main fragments are in contact. But the need must be determined by the merits of the individual case.

TOP: Male, age 16. Comminuted fracture, shaft humerus, lower third. Semi-open reduction, pin fixation without circular wires. Fixation was secure, no external splints applied. At five weeks abduction of the shoulder was 90 degrees without limitation of internal or external rotation. Motion of the elbow normal. At two months healing was secure.

BOTTOM: Male, age 16. Similar case. Semi-open reduction, pin and circular wire fixation. Immediate function. Good healing and pin removed at two months. Wires were probably not necessary, but appeared to add stability.



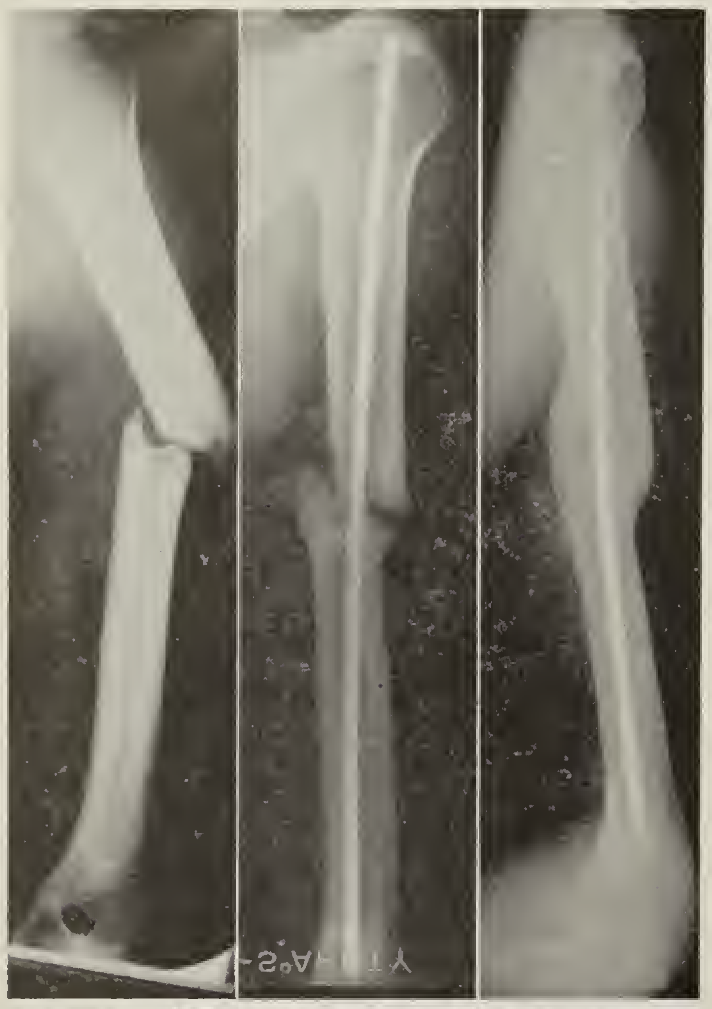


Early Function, Less Atrophy

The muscles of the upper arm are weaker than generally believed. Loss of muscle tone can produce non-union through loss of firm bone contact. Early function prevents deltoid atrophy and peri-articular adhesions of the shoulder, both of which can become evident in astoundingly short time. ALL ATTEMPTS AT MOTION SHOULD BE ACTIVE. Passive motion can loosen the fixation.

Case above, male, age 52. Comminuted spiral fracture junction middle and lower thirds of humerus. Semi-open reduction, fixation by pin three sixteenths inch in diameter. Fixation stable, no external immobilization. Photograph shows absence of muscle atrophy at five weeks. Good healing, pin removed at three months.

Below Deltoid Insertion

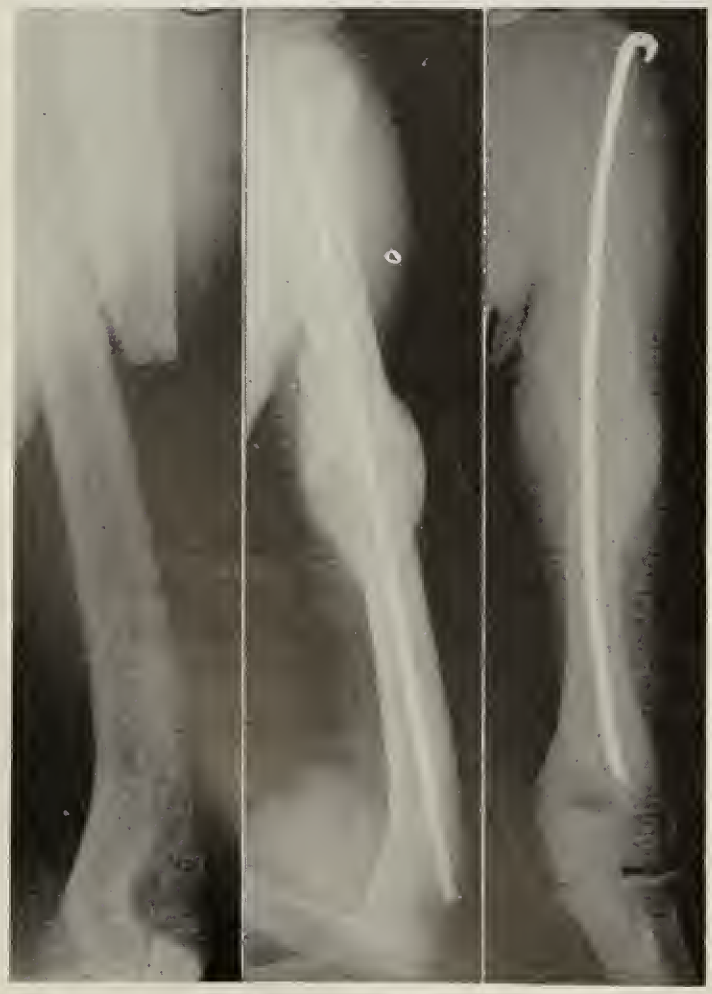


STRAIGHT PIN: BAD

Male, age 31, oblique fracture just below deltoid insertion. By semi-open reduction, a straight 3/16 inch pin was introduced. The deltoid muscle pulled the upper fragment laterally. Note the direction of the obliquity of the fracture line permitting distraction from this muscle pull.

At eight months union was definitely delayed. Iliac barrel stave grafts were applied superiosteally without disturbing the fibrous union.

Throughout entire treatment, full function was permitted. One month after original injury, abduction of the shoulder was greater than ninety degrees. Healing was secure at twelve months, pin removed at two years. Excellent ultimate result, no deformity, no loss of function. No external immobilization applied.



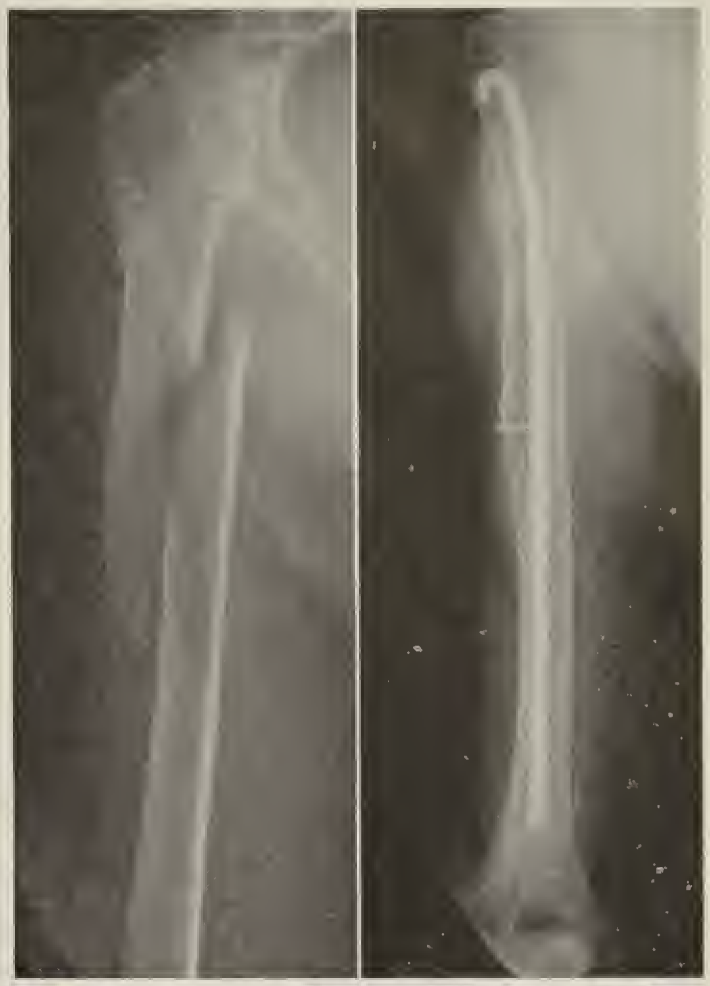
CURVED PIN: GOOD

Male, age 21, similar oblique fracture of the humerus at the same level, semi-open reduction, fixation by a curved pin 3/16" in diameter gave excellent fixation with firm contact compression. By contrast with the case above very rapid healing occurred.

Note: This is the level at which non-union frequently occurs. Good contact compression can usually be accomplished by the use of a curved pin and if doubt exists as to possibilities of rotary stress, a light hanging cast is an excellent safeguard.

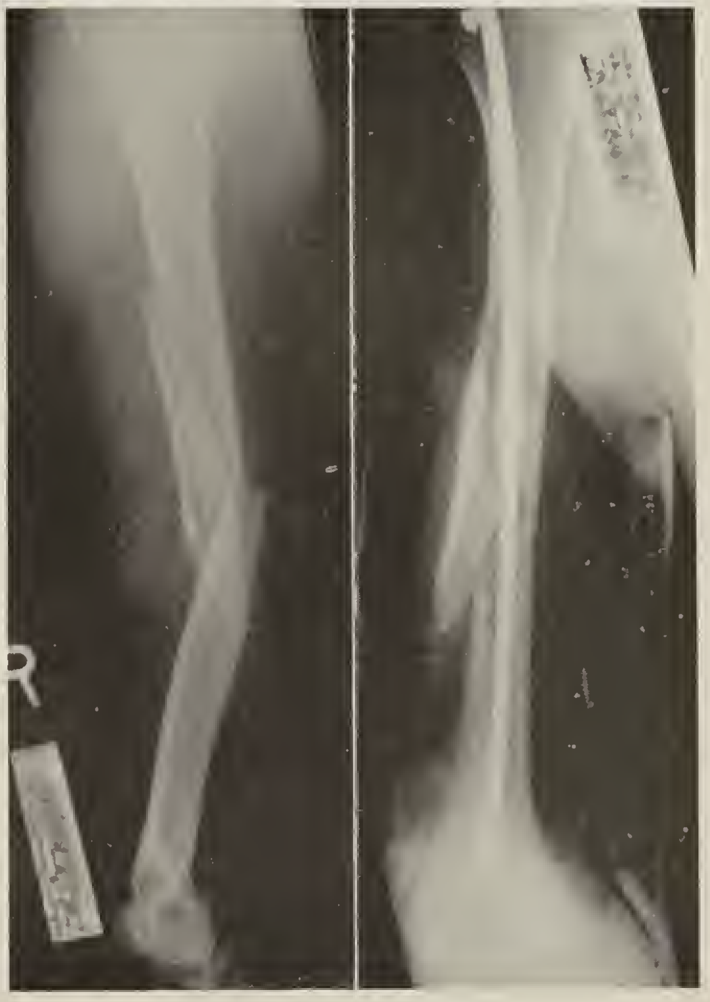
Influence of Deltoid Pull

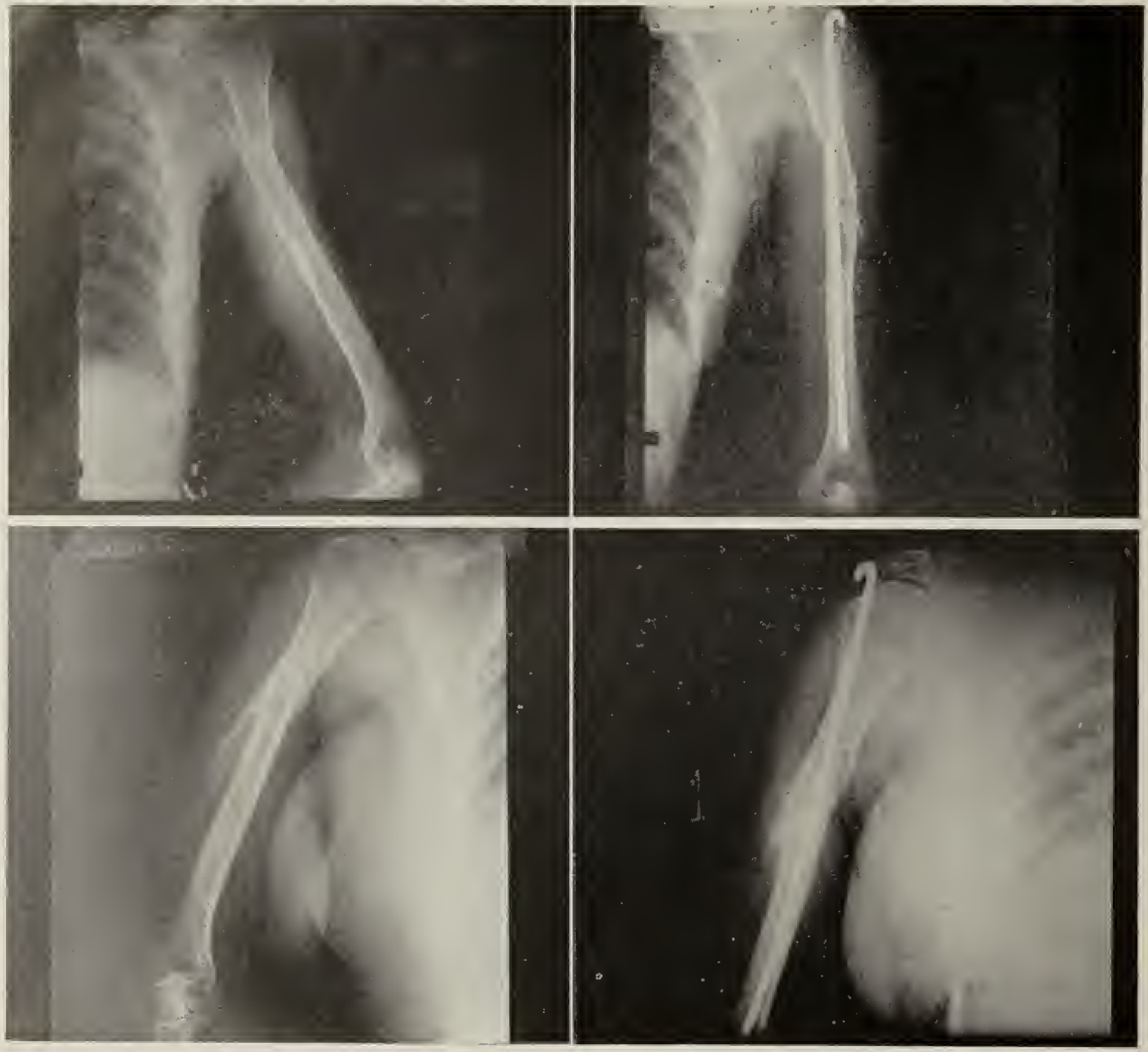
Female, age 67, comminuted spiral fracture at the level of the deltoid insertion. The fragment no doubt comminuted due to the deltoid pull. Semi-open reduction, fixation by 3/16 inch pin and circular wire. First attempt to pass a straight pin caused wide separation of the fragments. Curved pin produced good alignment. Healing complete, full function at three months. Pin not removed because of patient's age.



Male, age 50, comminuted fracture humerus at the level of the deltoid insertion. Note, the wide displacement of the fragment because of the deltoid pull. Pinned as a closed procedure using a curved pin 1/4 of an inch in diameter. Pin of this large diameter was used because of this patient's size, he being a huge individual with a very long bone and extremely large medullary canal.

Better position of the comminuted fragment would have resulted had a circular wire been used. This was purposely not done to avoid opening the fracture site. KES dressing applied for ten days, replaced by light hanging cast for six weeks to avoid rotation.





Wires Are Necessary

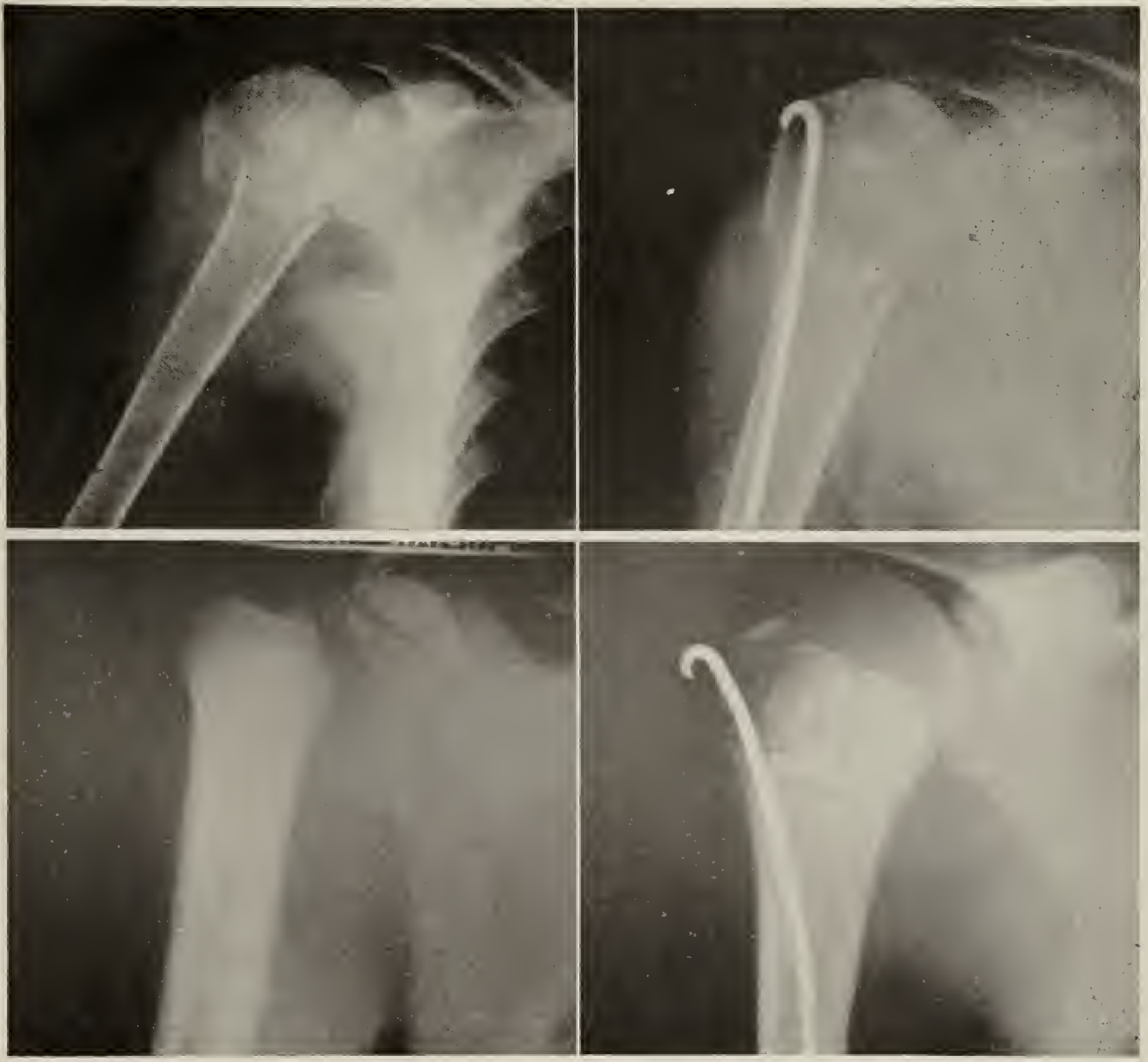
Spiral and comminuted fractures in the region of the deltoid insertion tend to displace markedly. Circular wires are usually necessary to supplement pin.

At this level healing is usually good and immediate function can be permitted. Open reduction may be required.

UPPER: Female, age 62. Semi-open reduction. Using wire-carrier, wires applied avisually. No splinting. Abduction shoulder 90 degrees at 6 weeks. Some difficulty securing overhead extension during next two months. Pin out at 5 months.

LOWER: Female, age 60, Comminuted spiral fracture at deltoid level. Semi-open reduction. Pin and wire fixation stable.

Head of pin too prominent, limited abduction. Pin removed at 7 weeks.



Pectoralis Pull

In neck fractures the pectoralis major muscle pulls the shaft medially. This pull is continuous and deformity, not at first present, can later develop. The pin resists this pull to produce three-point pressure within the bone for fixation.

UPPER: Female, age 70. Closed reduction and pinning. Pin 1/8 inch diameter. Immediate active function. Pin not removed.

LOWER: Male, age 14. Fracture of neck involving epiphyseal line. Closed reduction by traction and medial pressure on upper end of shaft. Pin introduced, blind, through side of tuberosity.

The lateral displacement was due to force of violence. After reduction pectoralis pull became effective.

Head of pin prominent to facilitate its removal under local analgesia at 4 weeks.

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